Order No. MTNC031045A1
B19 Canada: B02

Service Manual

HDTV MONITOR

Simplified

PT-56WX33G
P8

Please file and use this manual together with the service manual for Model No. PT-56WX53G, Order No. MTNC030518C1. Models PT-56WX53G and PT-56WX33G are identical except that PT-56WX33G does not have a protective screen. This simplied service manualonly includes the unique characteristics to the model shown above.

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1. Safety precautions

General guidelines

An isolation transformer should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injuryfrom electrical shocks. It will also protect the receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always replace protective devices, such as fish paper, isolation resistors and capacitors, and shields after servicing the receiver. Use only manufacturer’s recommended rating for fuses, circuits breakers, etc.

High potentials are present when this receiver is operating. Operation of the receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautionswhen servicing high voltage equipment.

Extreme care should be practiced when handling the picture tube. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, usesafety goggles and heavy gloves for protection. Discharge the picture tube by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a wellinsulated wire or use a grounding probe.Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to x ray radiation.

The test picture tube used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against x ray radiation as well as implosion. The magnetic shieldlimits the x ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling 50kV without causing x ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. Do not use a line isolation transformer when testing.

Leakage current cold check

Unplug the A.C. cord and connect a jumper between the two plug prongs.Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a returnpath to the chassis, the reading should be between 240k Ω and 5.2M Ω . If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

Leakage current hot check

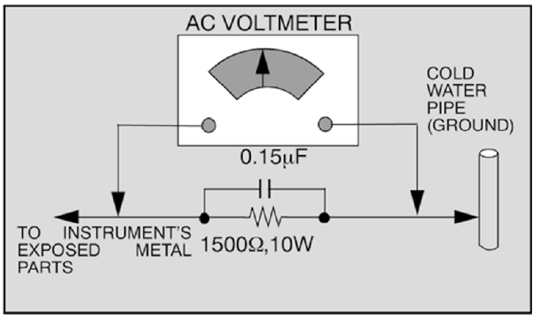
Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check. Connect a 1.5k Ω 10 watt resistor in parallel with a 0.15 μ F capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts.

Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson model 229, Sencore model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliampere.If any measurement is out of the specified limits, there is a possibility of a shock hazard and the receiver must be repaired and rechecked before it is returned to the customer.

Hot check circuit



Insulation test
Connect an insulation tester between an exposed metallic part and A.C. line. Apply 1080VAC/ 60Hz for 1 second. Confirm that the current measurement is 0.5mA ~ 2.0mA. Repeat test with other metallic exposed parts.

X ray radiation

WARNING
The potential source of x ray radiation in the PTV set is in the high voltage section and the picture tube.

NOTE
It is important to use an accurate, calibrated high voltage meter.

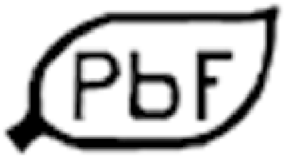
Apply all black video signals (1080i) and confirm high voltage measures 31.5 ± 1.0kV. If the high voltage is not within the range, change C514 to 1800pF, 2000pF, 2400pF or 2700pF until the desired value is obtained.ApplyNTSC white pattern and confirm the high voltage measures 30.1 ± 1.5kV. Apply HD 1080i white pattern and confirm the high voltage measures 30.1 ± 1.5kV.

2. About lead free solder (PbF)

NOTE
Lead is listed as (Pb) in the periodic table of elements. / In the information below, Pb will refer to lead solder, and PbF will refer to Lead Free Solder. / The lead free solder used in our manufacturing process and discussed below is (Sn+Ag+Cu). / Thatis Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

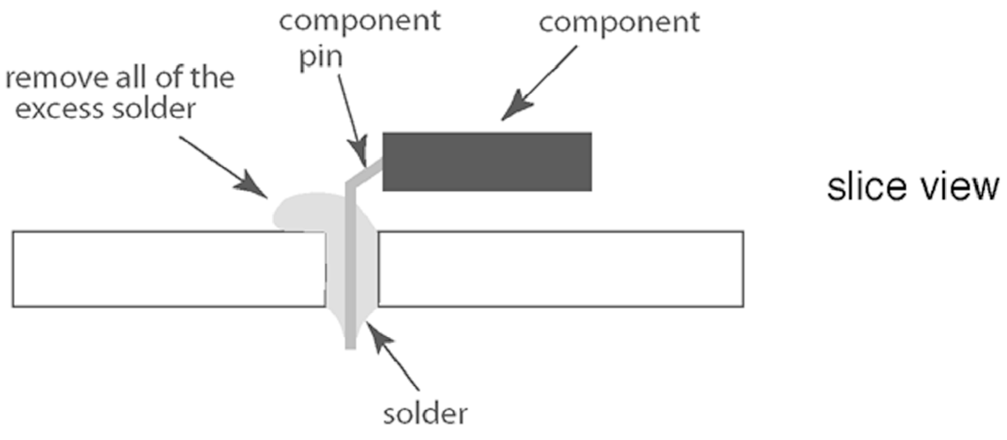
This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For

/ service and repair work, we’d suggest the use of Pb free solder as well, although Pb solder may be / used. / PCBs manufacturedusing lead free solder will have the “PbF” or a leaf symbol stamped on the / back of PCB.



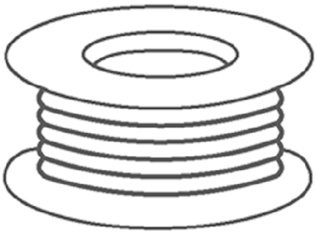
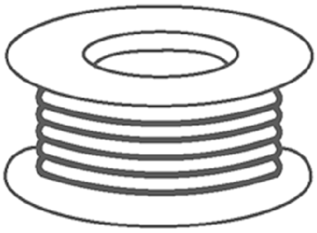
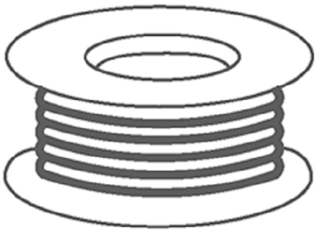
CAUTION

- **Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30 ~ 40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).**
- **Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). / If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If thisis not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.**
- **After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side.**



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also beused.

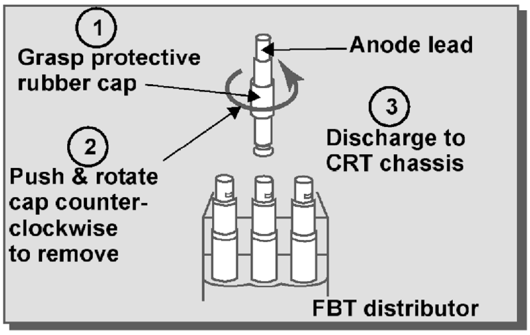
0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

3. Important safety tests

Measuring H.V.

The anode caps are cemented to the CRTs. To gain access for high voltage measurement, remove the red CRT’s anode lead from the flyback transformer distributor. Grasp the anode lead protective cap at its bottom and squeeze it against thelocking cap body inside, rotate 1/4 turn counter clockwise and pull the anode lead sleeve out of the FBT distributor. Connect a high voltage positive lead from your H.V. meter to the FBT distributor, and the common negative lead to cold ground

FBT leads removal


①
Grasp protective rubber cap
Anode lead
③
Discharge to CRT chassis
②
Push & rotate cap counter-clockwise to remove
FBT distributor

Note:

Reinsert the anode lead into the FBT distributor until it is tightly and fully seated. Turn the locking cap clockwise to lock in place.

(EHT) Protector operation check

With the cabinet back removed, apply a nominal 120V A.C. to the PTV.

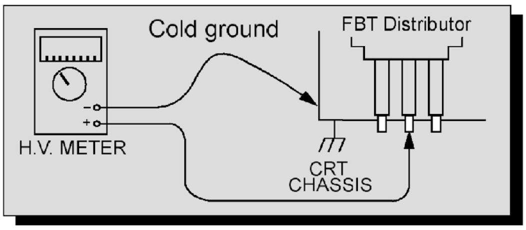
Over voltage test

Preparation:

1. **Turn PTV “OFF”**
2. **Connect a NTSC signal generator to the antenna terminal.**
3. **Connect DVM positive lead to D31 pin 2 and negative lead to D31**

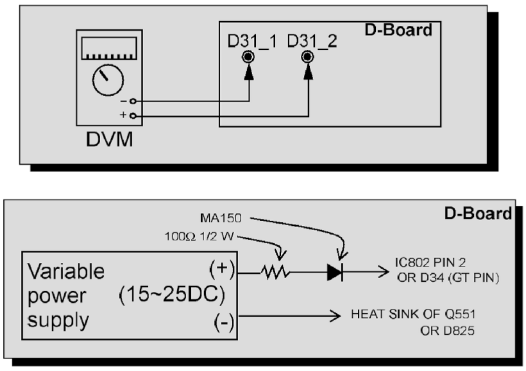
pin 1 on D-Board

H.V. measurement


Cold ground
FBT Distributor
– o
+ o
H.V. METER
CRT
CHASSIS

4. Connect a H.V. meter (static type, class 0.1) with high voltage leads to high voltage distributor on FBT.

DVM and power supply connection


D31_1
D31_2
D-Board
– o
+ o
DVM
MA150
100Ω 1/2 W
D-Board
Variable power supply
(+)
(15~25DC)
(-)
IC802 PIN 2 OR D34 (GT PIN)
HEAT SINK OF Q551 OR D825

5. Connect the 15 ~ 25 V DC variable power supply positive lead to D34 or IC802 pin 2 (D Board) and negative lead to heat sink of Q551 or D825

Procedures:

1. Apply a NTSC white pattern.
2. Turn PTV ON.
3. Adjust the picture or brightness controls so that the DVM reads 12.4 ± 0.4 volts.
4. Increase the variable power supply until set turns off. The set should turn off at 12.4 ± 0.4 volts (DVM) and high voltage less than 36.4kV.
5. If the DVM reading is other than 12.4 ± 0.4 volts, readjust picture or brightness control and repeat steps 3.
6. Turn off the variable supply and confirm that the set will turn on with the remote control.

4. Service notes

NOTE
These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless chip component (surface mount)
Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board,however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.
Chip resistor have a three digit numerical resistance code, 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6k Ω resistor, 0 = 0 Ω (jumper).
Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.
Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.
Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

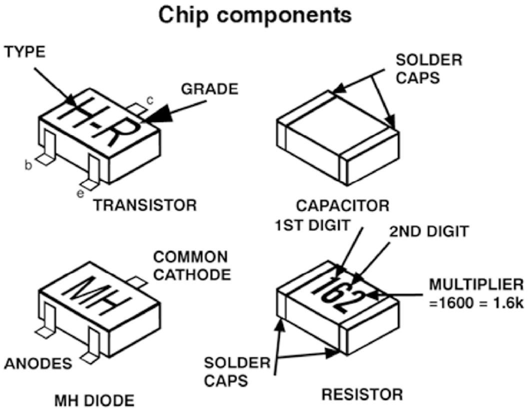
Component removal

1. **Use solder wick to remove solder from component end caps or terminal.**
2. **Without pulling up, carefully twist the component with tweezers to break the adhesive.**
3. **Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.**

Chip component installation

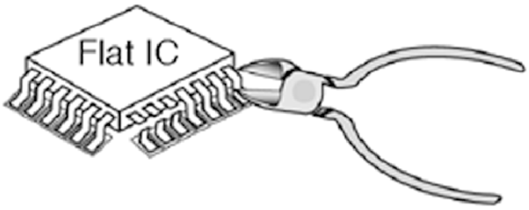
1. **Put a small amount of solder on the board soldering pads.**
2. **Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area**

with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

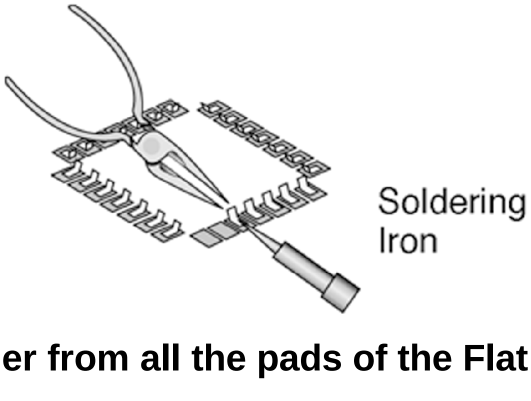

Chip components
TYPE
GRADE
c
b
e
H-R
TRANSISTOR
SOLDER
CAPS
CAPACITOR
1ST DIGIT
2ND DIGIT
162
MULTIPLIER
=1600 = 1.6k
SOLDER
CAPS
RESISTOR
COMMON
CATHODE
MH
ANODES
MH DIODE

How to replace flat ic (required tools)

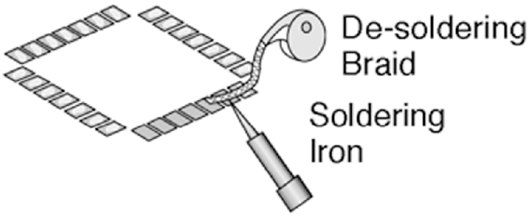
1. **Remove the solder from all of the pins of a Flat IC by using a desolder braid**



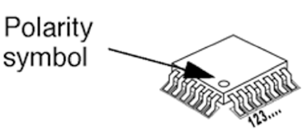
2. **Put the iron wire under the pins of the Flat IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.**

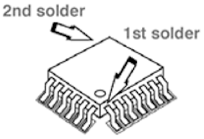

Soldering
Iron

3. **Remove the solder from all the pads of the Flat IC by using a de solder braid**

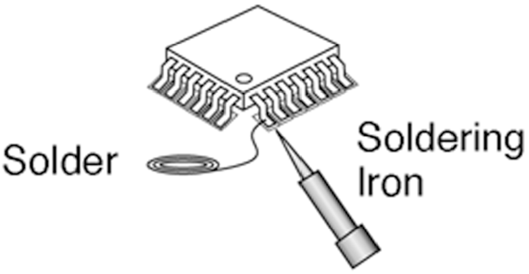

De-soldering
Braid
Soldering
Iron

4. Position the new Flat IC in place (apply the pins of the Flat IC to the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol

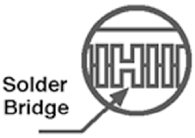

Polarity
symbol
123....

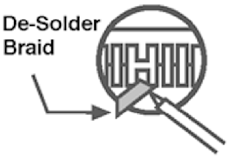

2nd solder
1st solder

5. Solder all pins to the soldering pads using a fine tipped soldering iron


Solder
Soldering
Iron

6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de solder braid as shown in the figure below


Solder
Bridge


De-Solder
Braid

IMPORTANT

To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires are securely connected

CAUTION

The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground(HOT or

COLD) when servicing, or incorrect voltages will be measured.

WARNING

This receiver has been designed to meet or exceed applicable safety and x ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to x ray radiation and shock and fire hazard, parts indicated with the symbol ⚠ on the schematic must be replaced with identical parts. Order parts from the manufacturer'sparts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.

5. Receiver feature table

FEATURE/MODEL	PT-56WX33G
CHASSIS	AP825
MICRO	256K
MENU LANGUAGE	ENG/SPAN/FR
CLOSE CAPTION	X
V-CHIP (USA/CANADA	X
CHANNEL INFO BANNER	X
VIDEO INPUT SKIP	SKIP
CHANNEL COUNT	181
PIP (1T), 2T PIP (2T), 2T SPLIT	2T SPLIT
2RF	X
REMOTE CONTROL (W/LIGHT)	EUR7603Z90
CRT SUPPLIER	MDDA (CENTAUR)
SCREEN	NO PROTECTIVE SCREEN
CHASSIS	P8W
COMB FILTER	MOTION ADP, 3D Y/C
HEC/VEC (X=BOTH)	X
NEW YNR	X
VM	X (DIGITAL)
V/A NORM (X=BOTH)	X
COLOR TEMP	X
AIP	X
PRESET/INPUT LABELING	X
VIDEO PICTURE MEMORY	X
DIGITAL SCAN RATE	1080i, 480p
NTSC LINE DOUBLER	480p PROGRESSIVE (NEW)

FEATURE/MODEL	PT-56WX33G
MTS/SAP/DBX	X
BUILT-IN AUDIO POWER	15Wx2 (10%)
No. OF SPEAKERS	4
BASS/BALANCE/TREBLE CONTROL	X
AI SOUND	X
SURROUND	X
SPATIALIZER/BBE	BBE
A/V IN (REAR/FRONT)	4(3/1)
A/V PROGRAM OUT	X
AUDIO OUT (FAO: F, VAO:V)	F, V
COMPONENT INPUT (Y, Pb, Pr)	2
S-VHS INPUT (REAR/FRONT)	2/1
HDMI/HDCP INPUT	DVI/HDCP

Note:
Specifications are subject to change without notice or obligation.

6. Board description table

BOARD	PART NUMBER	DESCRIPTION
A-BOARD	TNP2AH045	MAIN CHASSIS
D-BOARD	TNP2AH046	POWER SUPPLY
* DC-BOARD	TNP2AA120	CONVERGENCE CIRCUIT
* DV-BOARD	TNP2AA114	DVI BOARD
* DG-BOARD	TNP2AA126	PIP PROCESSING, SPLIT, SEARCH, FO
LB-BOARD	TNP2AA147	BLUE PRT
LR-BOARD	TNP2AA145	RED PRT
LG-BOARD	TNP2AA146	GREEN PRT
K-BOARD	TNP2AA089AA	FRONT KEY BOARD
G-BOARD	TNP2AA090AA	FRONT A/V BOARD
R-BOARD	TNPA0615AB	IR BOARD

NOTE:
When ordering a replacement board assembly, append an “S” to the board number

EXAMPLE:
To order the A Board, the replacement board is TNP2AH045S

*** NOTE:**
The DC-Board, DG-Board and DV-Board are non-serviceable boards, except for DV-Board audio connector and DVI connector. If any of these boards or DV-Board components are defective, replace it with a new one.

7. Parts list

7.1. Description of abbreviations guide

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor

Example :
ERD25TJ104 **C** 100KΩ, **J**, 1/4W
Type Allowance

Type	Allowance
C : Carbon	F : ± 1%
F : Fuse	G : ± 2%
M : Metal Oxide Metal Film	J : ± 5% K : ± 10%
S : Solid	M : ± 20%
W : Wire Wound	

2. Capacitor

Example :
ECKF1H103ZF **C** 0.01μF, **Z**, 50V
Type Allowance

Type	Allowance
C : Carbon	C : ± 0.25pF
E : Electrolytic	D : ± 0.5pF
P : Polyester Polypropylene	F : ± 1pF G : ± 3%
T : Tantalum	J : ± 5%
	K : ± 10%
	L : ± 15%
	M : ± 20%
	P : ± 100%, -0%
	Z : ± 80%, -20%

7.2. Parts list

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUITS	
IC1112	TVR2AJ158S	CONVERGENCE EEPROM	
		OTHERS	
M001	TKG2AH50721	SCREEN FRESNEL	
M002	TKG2AH50731	SCREEN LENTICULAR	
M003	TKZ2A06012	SCREEN BRACKET (BOTTOM)	
M004	TKZ2AM50022	SCREEN BRACKET (TOP)	
M005	TKZ2AM50051C	SCREEN BRACKET (SIDE)	
		ACCESORIES	
M005	TQB2AA0470-2	OWNERS MANUAL	

Note:
Please add and use this difference parts list together with the parts list in service manual for Model No. PT-56WX53G, Order No. MTNC030518C1.

Order No. MTNC030518C1
B19 Canada: B02

Service Manual

HDTV MONITOR

PT-53WX53G / PT-56WX53G / PT-47WX53G / PT-47WX33G / PT-47WXC43G / PT-4743G

P8

Panasonic®

A - BOARD - TNP2AH045

IC3002			
1	0.00	41	4.43
2	4.30	42	0.00
3	4.30	43	4.22
4	0.00	44	4.24
5	4.56	45	0.00
6	0.00	46	4.20
7	4.57	47	8.83
8	4.63	48	0.00
9	4.57	49	0.00
10	0.43	50	4.58
11	4.39	51	4.62
12	4.39	52	4.58
13	0.00	53	0.42
14	4.57	54	4.39
15	0.00	55	4.40
16	4.58	56	0.00
17	4.63	57	4.58
18	0.00	58	0.00
19	0.43	59	4.56
20	4.40	60	4.62
21	4.39	61	4.56
22	0.00	62	0.43
23	4.43	63	0.00
24	4.43	64	4.40
25	0.00	65	0.00
26	4.46	66	4.54
27	4.20	67	4.54
28	0.00	68	4.58
29	0.00	69	0.00
30	4.47	70	0.00
31	8.83	71	4.40
32	4.43	72	0.00
33	4.43	73	0.00
34	0.00	74	4.57
35	0.00	75	0.00
36	0.00	76	4.55
37	0.00	77	0.00
38	4.30	78	0.00
39	4.40	79	4.40
40	4.42	80	0.00

IC3001			
1	3.91	33	4.30
2	4.40	34	4.30
3	3.90	35	0.00
4	4.43	36	0.00
5	4.40	37	4.31
6	0.13	38	4.45
7	4.80	39	4.18
8	3.91	40	4.45
9	4.43	41	4.45
10	3.90	42	8.90
11	4.43	43	4.38
12	4.39	44	0.00
13	0.00	45	4.88
14	4.78	46	0.00
15	3.90	47	0.00
16	4.40	48	0.00
17	3.90	49	4.88
18	4.40	50	4.44
19	4.38	51	4.38
20	0.00	52	4.45
21	4.90	53	4.42
22	3.91	54	4.45
23	4.43	55	3.65
24	3.91	56	4.18
25	4.43	57	0.00
26	4.39	58	4.31
27	0.00	59	4.43
28	4.89	60	4.13
29	0.00	61	4.43
30	0.00	62	4.43
31	0.00	63	4.33
32	0.00	64	4.43

IC871	
1	19.27
2	5.15
3	0.00
4	5.01
5	2.00

IC872	
1	19.37
2	9.05
3	0.00
4	9.00
5	2.16

IC2451			
1	4.46	16	8.97
2	4.52	17	4.83
3	4.51	18	0.00
4	4.48	19	3.39
5	4.48	20	0.00
6	4.48	21	4.47
7	4.51	22	4.52
8	4.51	23	4.52
9	1.35	24	4.50
10	4.52	25	4.50
11	1.58	26	4.47
12	1.59	27	4.48
13	4.30	28	4.51
14	4.30	29	4.53
15	0.00	30	4.48

IC2201			
1	0.00	13	3.16
2	0.00	14	2.18
3	0.00	15	3.12
4	2.32	16	3.23
5	2.18	17	0.00
6	0.25	18	4.40
7	4.71	19	4.50
8	2.39	20	0.00
9	2.27	21	2.20
10	0.40	22	2.20
11	2.22	23	0.00
12	3.00	24	0.00

IC1101	
1	0.00
2	0.00
3	0.00
4	0.00
5	2.00
6	2.20
7	0.00
8	3.30

IC1112	
1	0.00
2	0.00
3	0.00
4	0.00
5	4.78
6	4.78
7	4.78
8	4.84

IC2302	
1	-22.42
2	-22.41
3	-0.36
4	21.99
5	0.00
6	4.72
7	0.00
8	2.67
9	0.00
10	0.00
11	0.00
12	5.48
13	0.00
14	-21.10
15	0.00
16	-5.61
17	0.00
18	0.00
19	0.00
20	0.00
21	9.83
22	21.90
23	-0.33
24	-22.42
25	-11.61

IC2304	
1	4.51
2	4.51
3	4.51
4	0.00
5	4.48
6	4.48
7	4.48
8	8.99

A - BOARD - TNP2AH045

	Q031	Q931	Q932	Q933	Q934	Q945	Q2301	Q2302	Q2304
B	0.72	4.50	1.96	10.80	10.80	10.20	19.47	19.47	0.00
C	0.13	10.80	3.88	19.45	19.45	0.00	-0.12	0.00	19.47
E	0.00	3.88	1.30	10.20	10.18	10.80	13.40	13.40	0.00

	Q2306	Q2307	Q2313	Q2451	Q2452	Q2501	Q2502	Q2503	Q2504
B	0.00	0.00	0.00	4.50	4.50	2.74	2.65	2.82	11.17
C	4.72	0.00	0.00	8.97	8.97	11.17	11.18	11.16	3.20
E	0.00	0.00	0.00	3.87	3.87	2.12	2.00	2.20	11.70

	Q2505	Q2506	Q2507	Q2508	Q2509	Q2510	Q3002	Q3003	Q3005
B	11.18	11.16	3.21	3.00	3.37	6.43	4.23	4.21	4.29
C	3.00	3.35	0.00	0.00	0.00	0.00	8.44	8.44	8.43
E	11.70	11.69	3.88	3.72	4.00	3.87	3.58	3.57	3.65

	Q3006	Q3007	Q3008	Q3011	Q3012	Q3013	Q3014	Q3015
B	4.26	4.20	4.30	4.47	4.18	4.30	4.17	4.30
C	8.42	8.44	8.43	0.00	8.92	8.92	8.92	8.92
E	3.62	3.55	3.65	5.15	3.54	3.67	3.53	3.66

D - BOARD - TNP2AH046

IC451	
1	0.00
2	17.06
3	-17.11
4	-18.46
5	0.30
6	16.78
7	0.00

IC1501	
1	10.71
2	0.00
3	0.00
4	0.00
5	2.44
6	2.45
7	1.52
8	1.92

IC701	
1	0.15
2	5.36
3	4.65
4	0.00
5	1.53
6	0.50
7	10.00
8	11.92

IC805	
1	19.70
2	0.00
3	11.92

IC7001			
1	0.00	10	19.10
2	0.00	11	0.00
3	-19.32	12	-20.36
4	-20.37	13	0.00
5	19.10	14	0.00
6	-0.26	15	0.00
7	-0.25	16	0.00
8	-20.36	17	-20.36
9	-0.31	18	-0.12

IC802	
1	139.00
2	18.54
3	0.00

IC801↓	
1	1.26
2	0.42
3	0.16
4	0.00
5	0.00
6	7.30
7	20.28
8	0.00
9	6.11

IC7002			
1	0.00	10	19.10
2	0.00	11	-0.53
3	-19.38	12	-20.37
4	-20.38	13	-0.46
5	19.10	14	-0.49
6	0.00	15	0.00
7	0.00	16	0.00
8	-20.37	17	-20.37
9	0.00	18	0.00

D - BOARD - TNP2AH046

	Q406	Q503	Q512	Q513	Q551	Q606	Q803↓	Q854
B	0.59	0.00	5.74	0.27	-0.22	0.00	20.28	138.60
C	0.00	11.16	11.92	5.75	-85.20	9.82	0.00	0.00
E	0.00	0.00	5.80	0.00	0.00	0.00	20.28	138.90

	Q1503	Q1504	Q1505	Q7006	Q7007	Q7060	Q7061
B	9.82	11.99	6.15	-20.36	-20.37	19.11	-20.38
C	6.31	506.0	10.48	-19.32	-19.38	0.00	19.10
E	10.46	11.46	6.17	-20.37	-20.38	19.27	-20.62

	Q501	Q502	Q701	Q801↓
G	5.80	11.13	10.00	6.83
D	15.97	0.00	-0.98	-15.70
S	0.00	0.00	0.00	0.00

LR - BOARD - TNP2AA145

	Q301	Q302	Q303
B	142.10	3.67	0.63
C	142.8	11.6	0.00
E	0.00	3.44	0.00

	Q353	Q354	Q355
B	12.03	184.90	183.6
C	183.60	219.10	0.34
E	11.60	184.40	184.3

	Q903	Q904	Q905
B	9.56	0.98	9.56
C	0.00	8.92	19.19
E	10.20	0.35	8.95

	Q906	Q907	Q901
B	10.20	8.95	137.60
C	19.19	0.00	129.80
E	9.60	9.57	138.20

	Q957	Q958
B	129.10	9.48
C	129.80	69.50
E	69.60	8.91

LG - BOARD - TNP2AA146

	Q331	Q373	Q374
B	4.00	12.03	174.80
C	11.60	173.30	219.10
E	3.77	11.60	174.30

	Q375	Q934	Q935
B	0.00	9.56	9.57
C	0.38	0.00	19.19
E	174.00	10.17	8.97

	Q936	Q937	Q938
B	10.17	8.98	137.60
C	19.20	0.00	129.80
E	9.60	9.59	138.20

	Q952	Q953	Q955
B	10.15	10.15	129.20
C	19.19	19.19	71.00
E	9.57	9.57	129.80

	Q956	Q941	Q951
B	9.72	0.99	10.16
C	70.90	9.16	19.19
E	9.15	0.36	9.56

LB - BOARD - TNP2AA147

	Q959	Q960	Q961
B	129.20	9.68	137.60
C	70.10	70.10	129.80
E	129.80	9.11	138.20

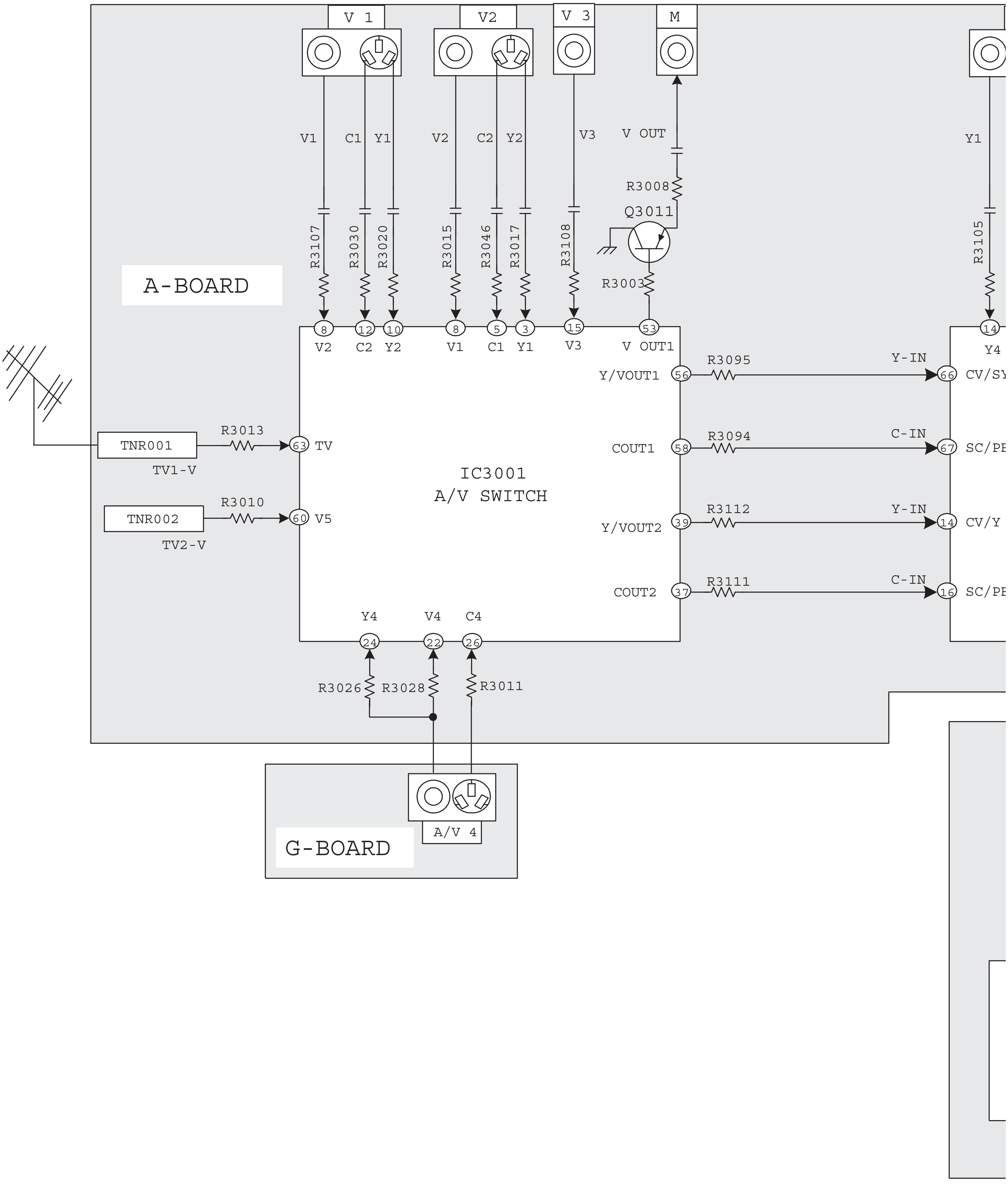
	Q964	Q965	Q966
B	0.99	9.57	9.57
C	9.12	0.00	19.19
E	0.35	10.20	8.97

	Q967	Q968	Q368
B	10.20	8.97	4.46
C	19.19	0.00	0.00
E	9.61	9.59	3.93

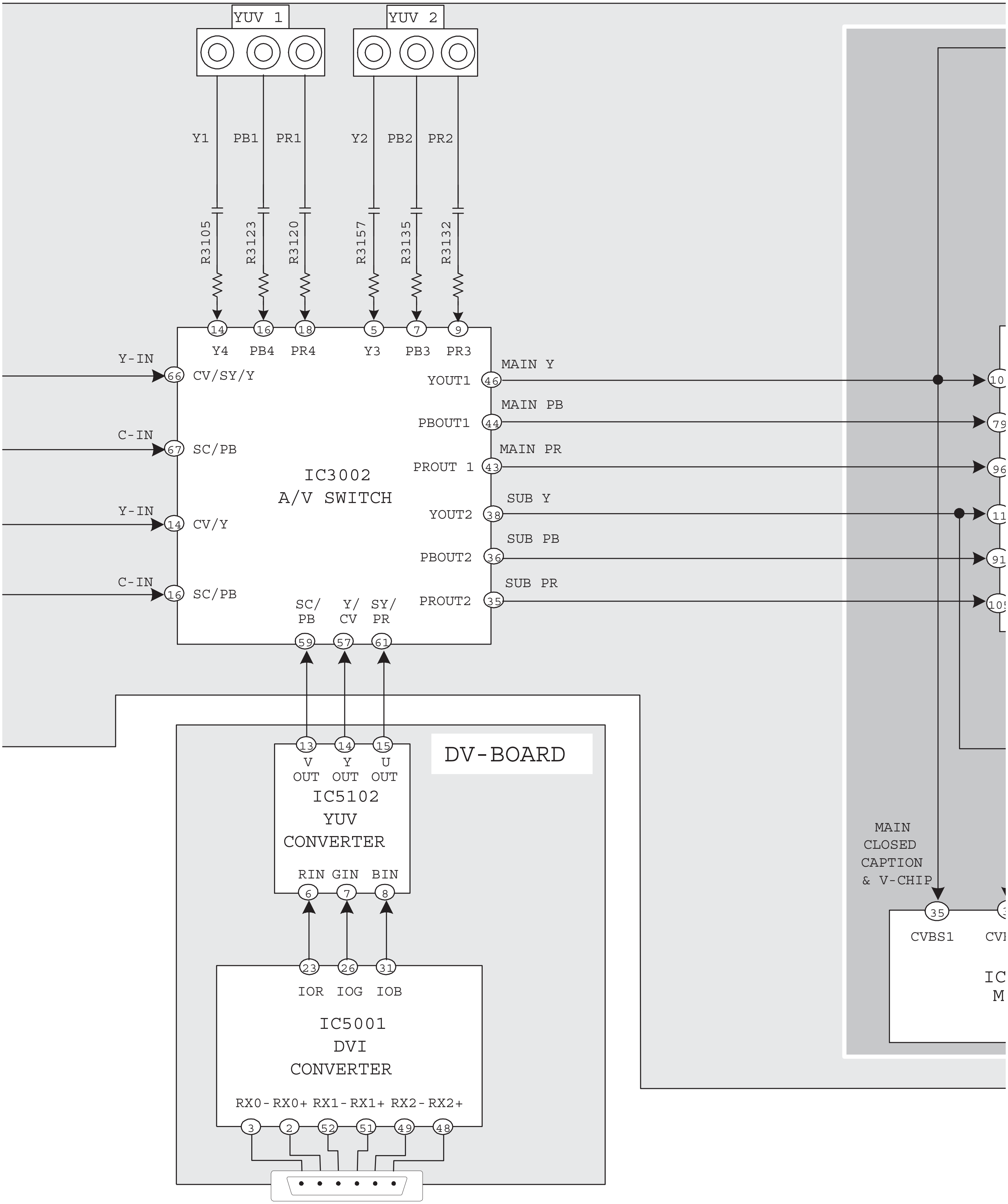
	Q393	Q394	Q395
B	12.03	176.20	174.90
C	174.80	219.10	0.37
E	11.58	175.90	175.60

	Q361	Q362	Q363
B	5.11	4.47	3.82
C	12.04	12.00	11.58
E	0.00	3.87	3.61

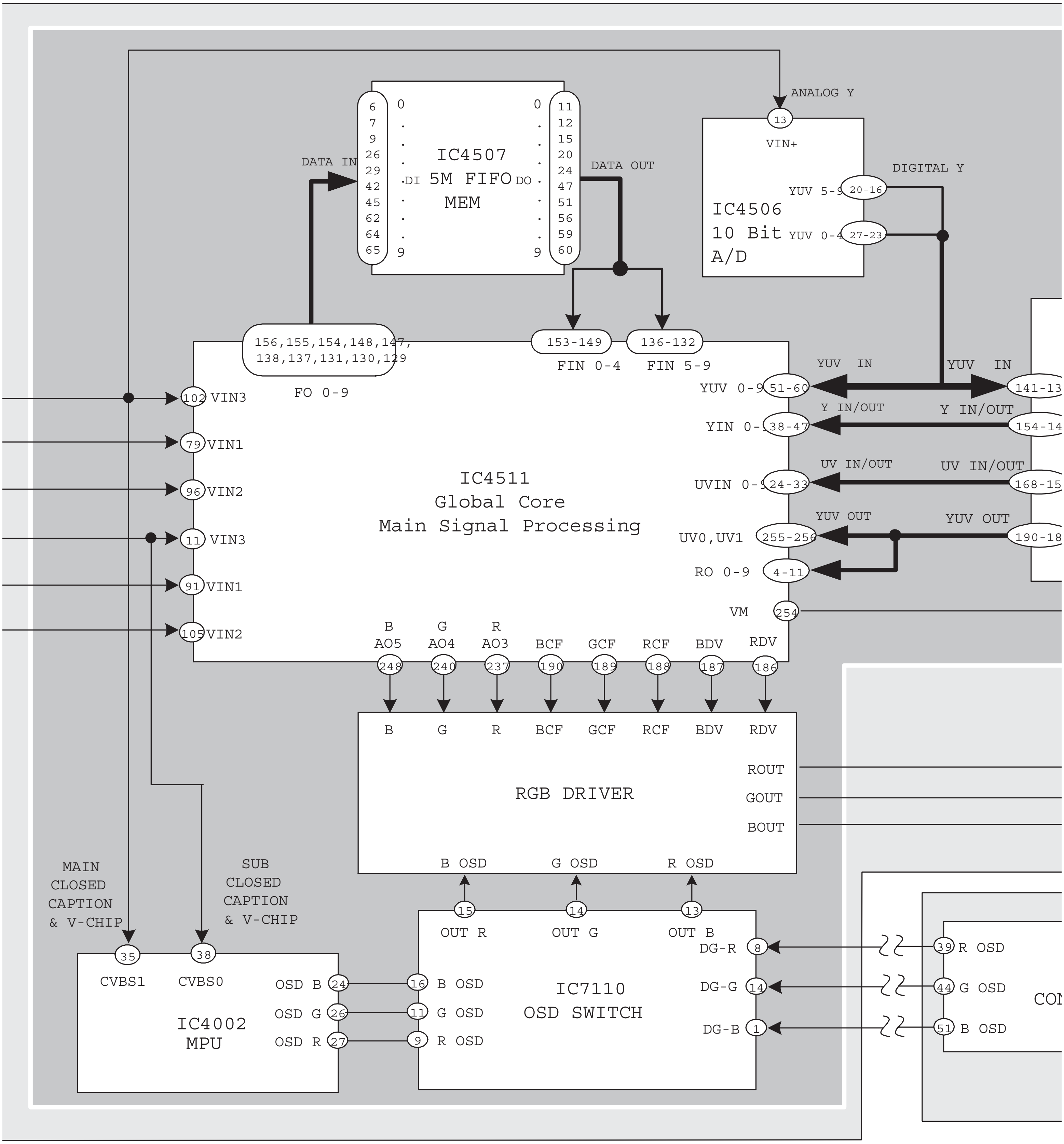
	Q364	Q365	Q366
B	3.87	5.92	5.07
C	0.00	12.00	12.04
E	3.42	5.28	4.46


V 1
V2
V 3
M
V1
C1
Y1
V2
C2
Y2
V3
V OUT
Y1
R3008
Q3011
R3107
R3030
R3020
R3015
R3046
R3017
R3108
R3003
R3105
A-BOARD
8
12
10
8
5
3
15
53
14
V2
C2
Y2
V1
C1
Y1
V3
V OUT1
Y4
R3095
Y-IN
Y/VOUT1
56
66
CV/S
TNR001
R3013
63
TV
TV1-V
COUT1
58
R3094
C-IN
67
SC/P
IC3001
A/V SWITCH
TNR002
R3010
60
V5
TV2-V
Y/VOUT2
39
R3112
Y-IN
14
CV/Y
COUT2
37
R3111
C-IN
16
SC/P
Y4
V4
C4
24
22
26
R3026
R3028
R3011
A/V 4
G-BOARD

VIDEO BLOCK DIAGRAM 1/4 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

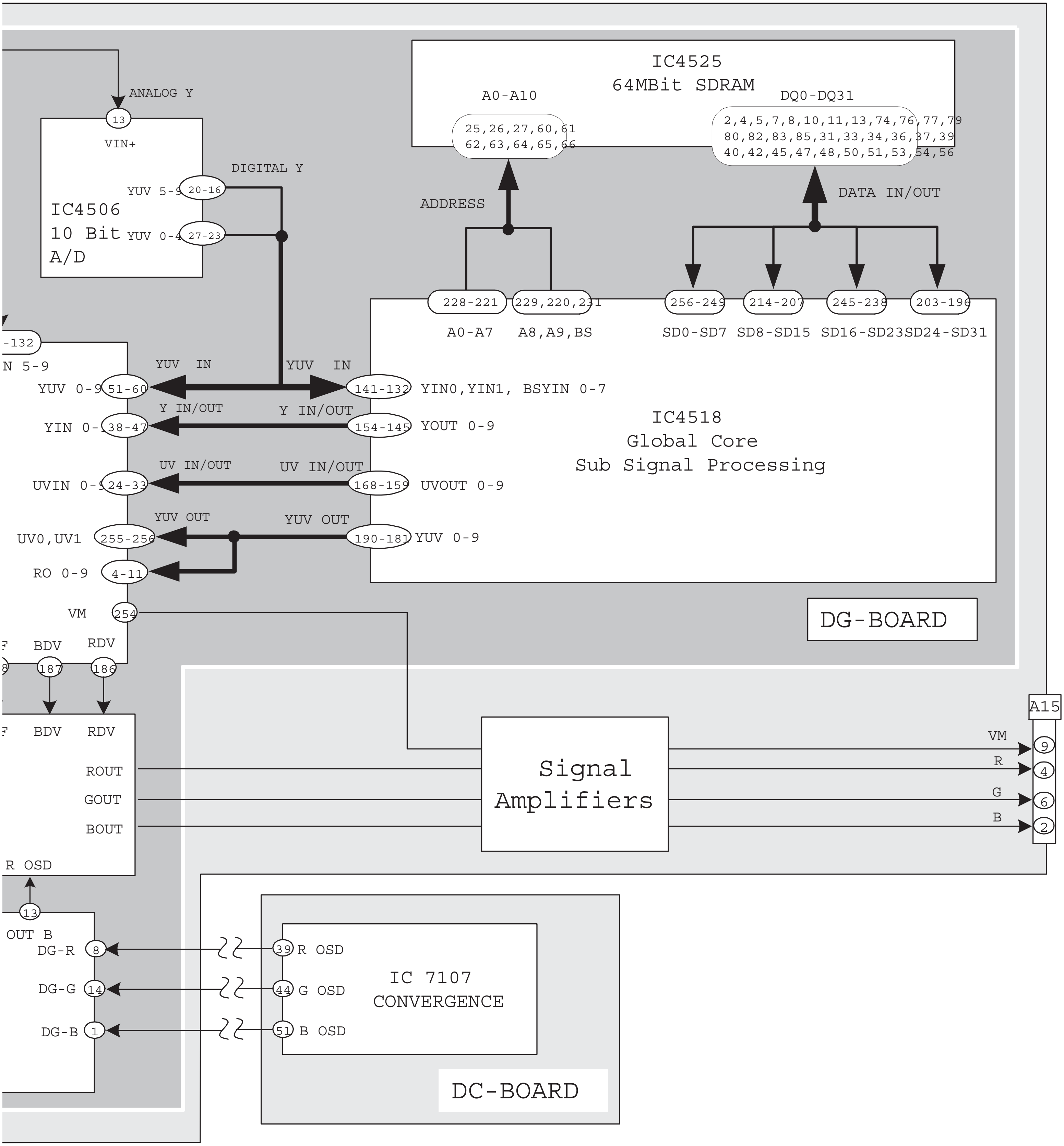

YUV 1
YUV 2
Y1
PB1
PR1
Y2
PB2
PR2
R3105
R3123
R3120
R3157
R3135
R3132
14
16
18
5
7
9
Y4
PB4
PR4
Y3
PB3
PR3
Y-IN
66
CV/SY/Y
C-IN
67
SC/PB
Y-IN
14
CV/Y
C-IN
16
SC/PB
IC3002
A/V SWITCH
MAIN Y
YOUT1
46
MAIN PB
PBOUT1
44
MAIN PR
PROUT 1
43
SUB Y
YOUT2
38
SUB PB
PBOUT2
36
SUB PR
PROUT2
35
SC/
PB
Y/
CV
SY/
PR
59
57
61
DV-BOARD
13
14
15
V
OUT
Y
OUT
U
OUT
IC5102
YUV
CONVERTER
RIN
GIN
BIN
6
7
8
23
26
31
IOR
IOG
IOB
IC5001
DVI
CONVERTER
RX0-
RX0+
RX1-
RX1+
RX2-
RX2+
3
2
52
51
49
48
MAIN
CLOSED
CAPTION
& V-CHIP
35
CVBS1
CVI
IC
M
10
79
96
11
91
105

VIDEO BLOCK DIAGRAM 2/4 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G



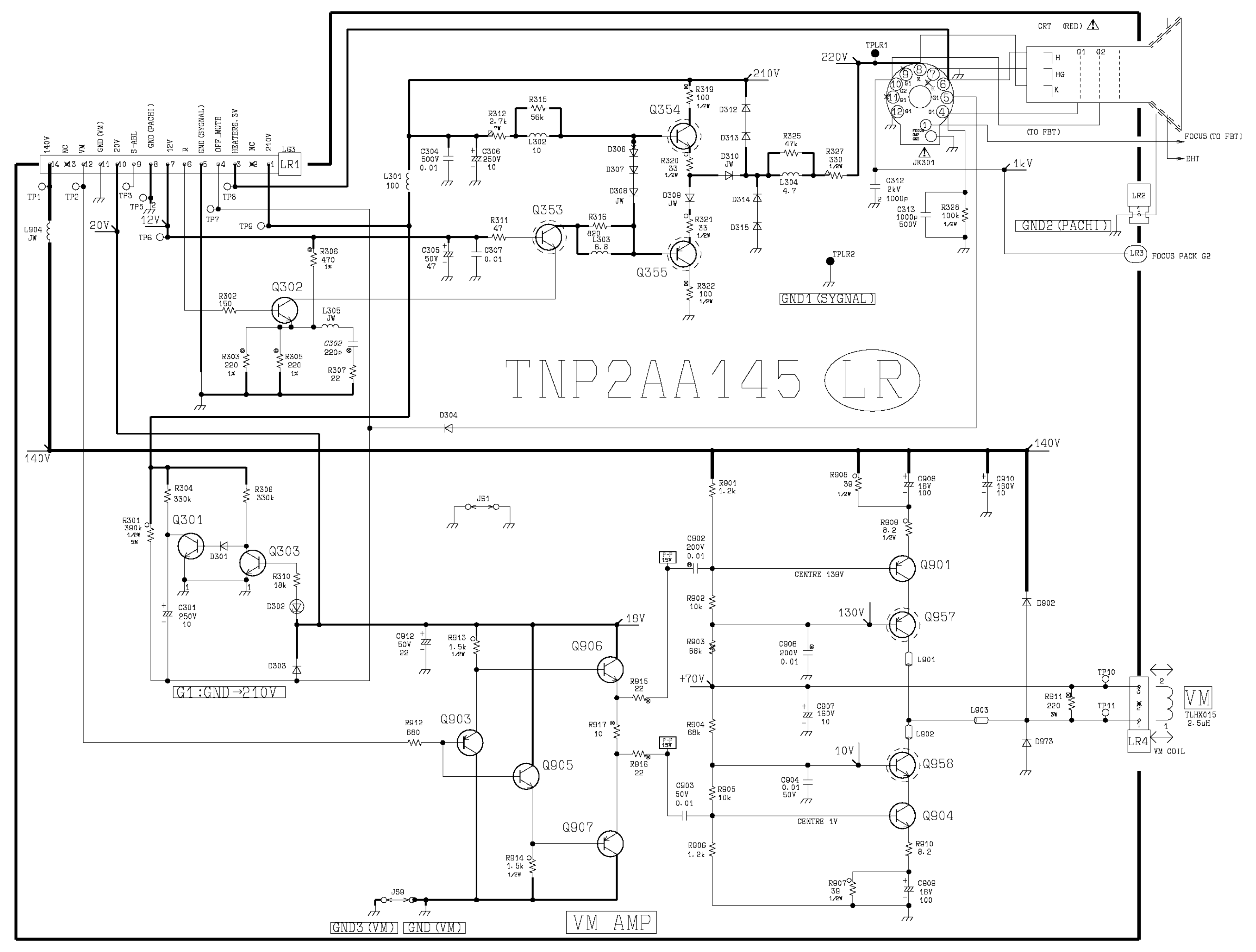
ANALOG Y
13
VIN+
IC4506
10 Bit
A/D
YUV 5-9
20-16
YUV 0-4
27-23
DIGITAL Y
DATA IN
DATA OUT
IC4507
5M FIFO
MEM
DI
DO
6 7 9 26 29 42 45 62 64 65
11 12 15 20 24 47 51 56 59 60
0
9
156,155,154,148,147,
138,137,131,130,129
FO 0-9
153-149
136-132
FIN 0-4
FIN 5-9
IC4511
Global Core
Main Signal Processing
102 VIN3
79 VIN1
96 VIN2
11 VIN3
91 VIN1
105 VIN2
YUV 0-9 51-60
YIN 0-9 38-47
UVIN 0-9 24-33
UV0,UV1 255-256
RO 0-9 4-11
VM 254
YUV IN
Y IN/OUT
UV IN/OUT
YUV OUT
141-13
154-14
168-15
190-18
B AO5 248
G AO4 240
R AO3 237
BCF 190
GCF 189
RCF 188
BDV 187
RDV 186
RGB DRIVER
B G R BCF GCF RCF BDV RDV
ROUT
GOUT
BOUT
B OSD
G OSD
R OSD
MAIN CLOSED CAPTION & V-CHIP
SUB CLOSED CAPTION & V-CHIP
35 CVBS1
38 CVBS0
IC4002
MPU
OSD B 24
OSD G 26
OSD R 27
15 OUT R
14 OUT G
13 OUT B
16 B OSD
11 G OSD
9 R OSD
IC7110
OSD SWITCH
DG-R 8
DG-G 14
DG-B 1
39 R OSD
44 G OSD
51 B OSD
CON

VIDEO BLOCK DIAGRAM 3/4 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

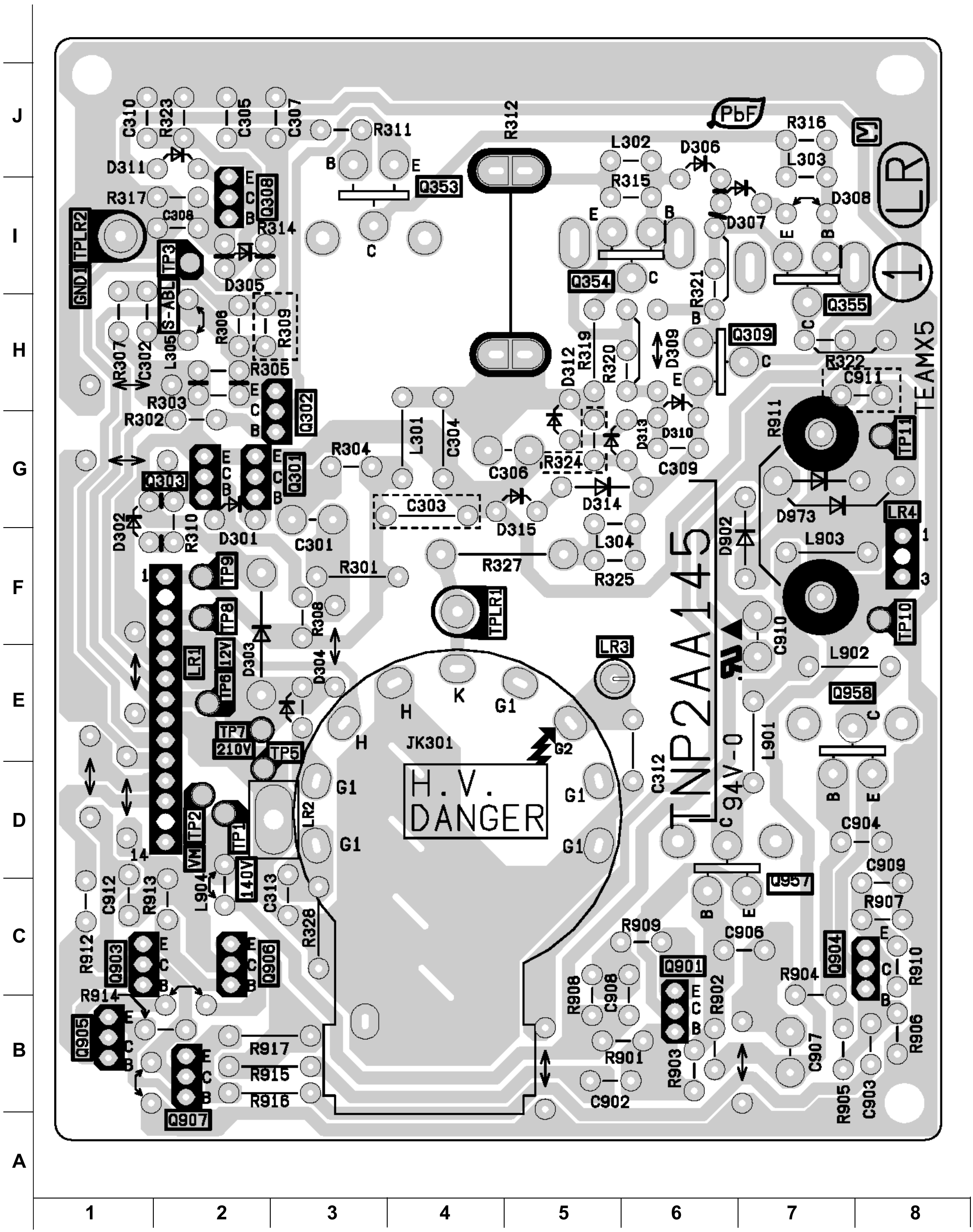

IC4525
64MBit SDRAM
A0-A10
25,26,27,60,61
62,63,64,65,66
DQ0-DQ31
2,4,5,7,8,10,11,13,74,76,77,79
80,82,83,85,31,33,34,36,37,39
40,42,45,47,48,50,51,53,54,56
ADDRESS
DATA IN/OUT
ANALOG Y
13
VIN+
DIGITAL Y
YUV 5-9
20-16
IC4506
10 Bit
A/D
YUV 0-4
27-23
228-221
229,220,231
256-249
214-207
245-238
203-196
A0-A7
A8,A9,BS
SD0-SD7
SD8-SD15
SD16-SD23
SD24-SD31
-132
N 5-9
YUV IN
YUV IN
YUV 0-9
51-60
141-132
YIN0,YIN1, BSYIN 0-7
Y IN/OUT
Y IN/OUT
YIN 0-
38-47
154-145
YOUT 0-9
IC4518
Global Core
Sub Signal Processing
UV IN/OUT
UV IN/OUT
UVIN 0-
24-33
168-159
UVOUT 0-9
YUV OUT
YUV OUT
UV0,UV1
255-256
190-181
YUV 0-9
RO 0-9
4-11
VM
254
DG-BOARD
BDV
RDV
187
186
BDV
RDV
ROUT
GOUT
BOUT
R OSD
13
OUT B
Signal
Amplifiers
A15
VM
9
R
4
G
6
B
2
DG-R
8
DG-G
14
DG-B
1
39
R OSD
44
G OSD
51
B OSD
IC 7107
CONVERGENCE
DC-BOARD

VIDEO BLOCK DIAGRAM 4/4 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

LR-BOARD TNP2AA145 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G



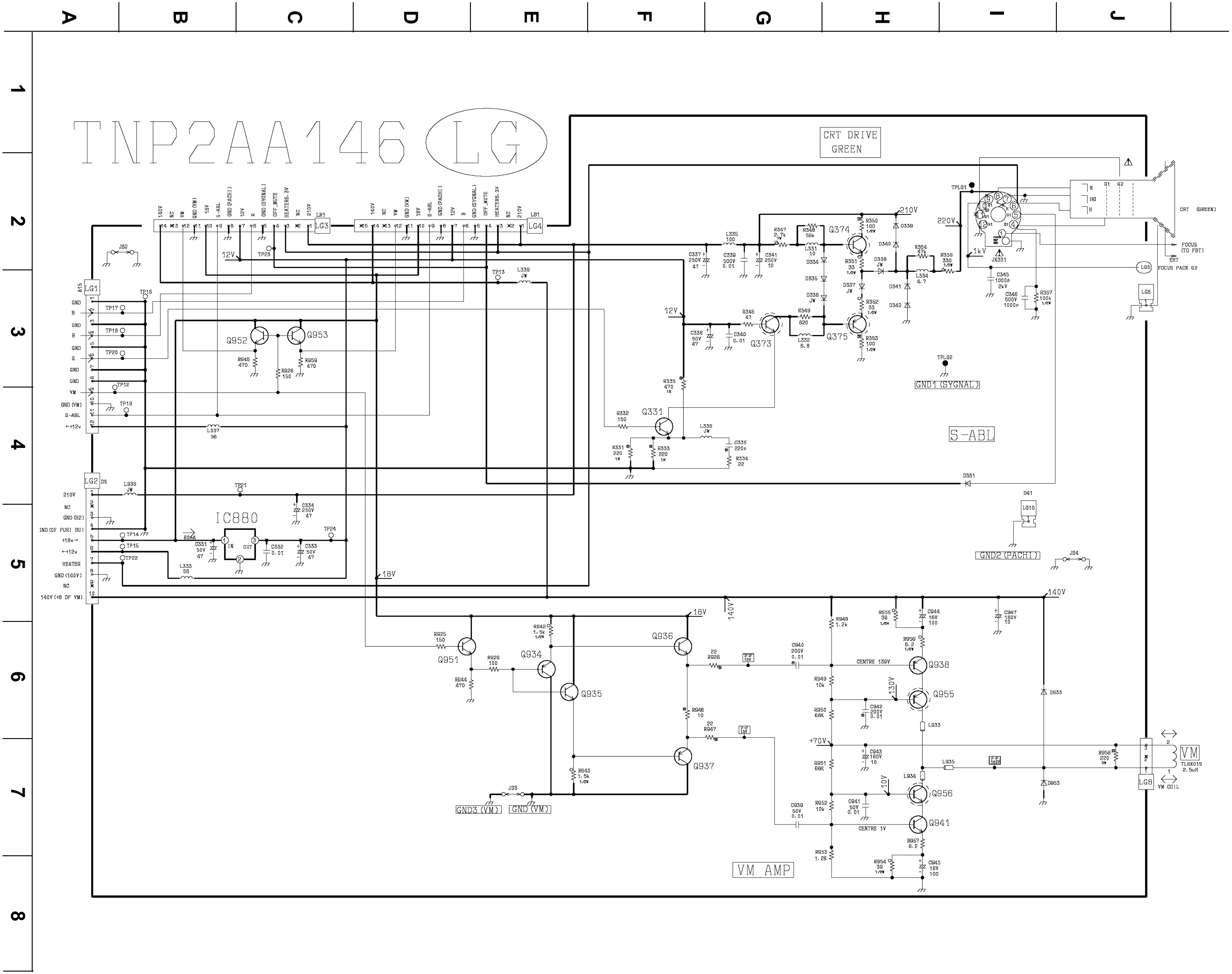
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
140V
NC
VM
GND (VM)
20V
S-ABL
GND (PACHI)
12V
R
GND (SYGNAL)
OFF_MUTE
HEATER6.3V
NC
210V
LG3
LR1
TP1
TP2
TP3
TP5
TP6
TP7
TP8
TP9
L904 JW
20V
12V
L301 100
C304 500V 0.01
C306 250V 10
R312 2.7k 7W
R315 56k
L302 10
Q354
R319 100 1/2W
210V
D312
D313
D306
D307
D308 JW
R320 33 1/2W
D310 JW
D309 JW
R321 33 1/2W
D314
D315
R325 47k
L304 4.7
R327 330 1/2W
220V
TPLR1
C312 2kV 1000p
C313 1000p 500V
R328 100k 1/2W
JK301
CRT (RED)
H
HG
K
G1
G2
(TO FBT)
FOCUS (TO FBT)
EHT
1kV
LR2
GND2 (PACHI)
LR3
FOCUS PACK G2
R311 47
Q353
R316 820
L303 6.8
Q355
R322 100 1/2W
TPLR2
GND1 (SYGNAL)
C305 50V 47
C307 0.01
R306 470 1%
Q302
R302 150
L305 JW
C302 220p
R303 220 1%
R305 220 1%
R307 22
TNP2AA145 (LR)
D304
140V
140V
R304 330k
R308 330k
R301 390k 1/2W 5%
Q301
D301
Q303
R310 18k
D302
C301 250V 10
D303
G1:GND→210V
JS1
R901 1.2k
R908 39 1/2W
C908 16V 100
C910 160V 10
R909 8.2 1/2W
C902 200V 0.01
P-P 15V
Q901
CENTRE 139V
R902 10k
130V
Q957
D902
R903 68k
C906 200V 0.01
L901
C912 50V 22
R913 1.5k 1/2W
18V
Q906
R915 22
+70V
C907 160V 10
TP10
R911 220 3W
TP11
L903
LR4
VM COIL
VM
TLHX015 2.5uH
R917 10
Q903
R912 680
Q905
R916 22
P-P 15V
R904 68k
L902
10V
Q958
D973
C903 50V 0.01
R905 10k
C904 0.01 50V
Q904
CENTRE 1V
Q907
R914 1.5k 1/2W
R906 1.2k
R910 8.2
R907 39 1/2W
C909 16V 100
JS9
GND3 (VM)
GND (VM)
VM AMP



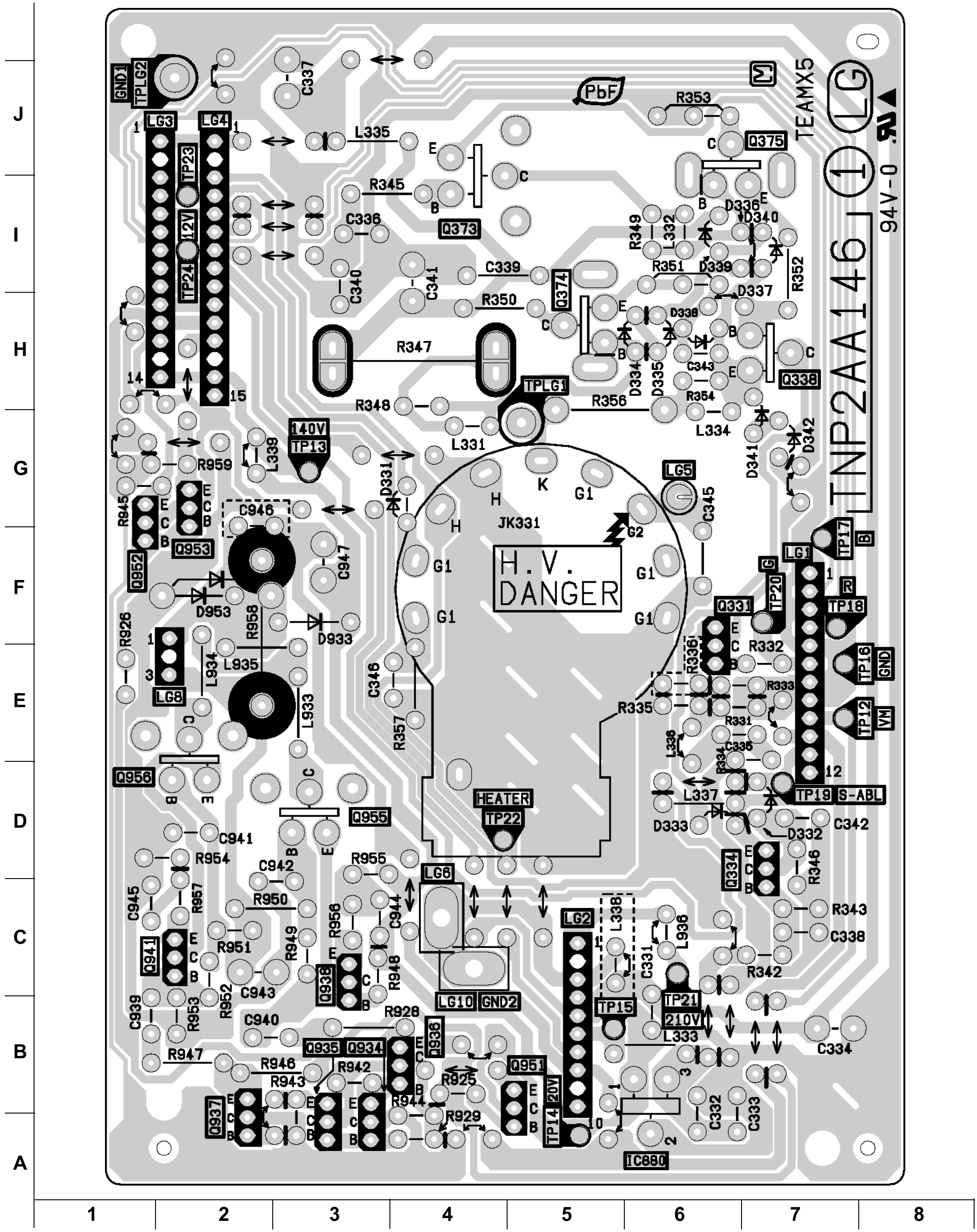
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
C310
R323
C305
C307
R311
R312
PbF
R316
M
D311
B
E
Q353
L302
D306
Q308
L303
R317
C308
R315
D308
LR
TPLR2
R314
E
B
D307
TP3
C
E
B
GND1
D305
Q354
C
R321
1
S-ABL
Q355
R309
R306
D309
B
Q309
C
R307
C302
L305
R305
D312
R319
R320
R322
C911
R303
E
E
TEAMX5
C
Q302
R911
R302
B
L301
C304
D313
D310
TP11
R304
Q303
Q301
R324
C306
C309
D973
C303
D302
R310
D301
C301
D315
D314
D902
LR4
L304
L903
1
3
R327
TP9
R301
R325
TP8
TPLR1
TNP2AA145
R308
C910
TP10
LR1
12V
D303
D304
LR3
L902
K
G1
TP6
H
Q958
C
TP7
210V
TP5
H
JK301
G2
L901
H.V.
DANGER
C312
G1
G1
94V-0
TP2
VM
TP1
LR2
G1
G1
C
C904
14
C909
C912
R913
L904
140V
C313
Q957
B
E
R907
R912
R328
R909
C906
E
Q903
Q906
Q904
R910
C
C
Q901
R904
B
B
C
R914
R908
C908
R902
B
Q905
E
C
B
R917
R901
C907
R906
R915
R903
E
C
B
R916
C902
R905
C903
Q907

LR-BOARD TNP2AA145 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

LG-BOARD TNP2AA146 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G



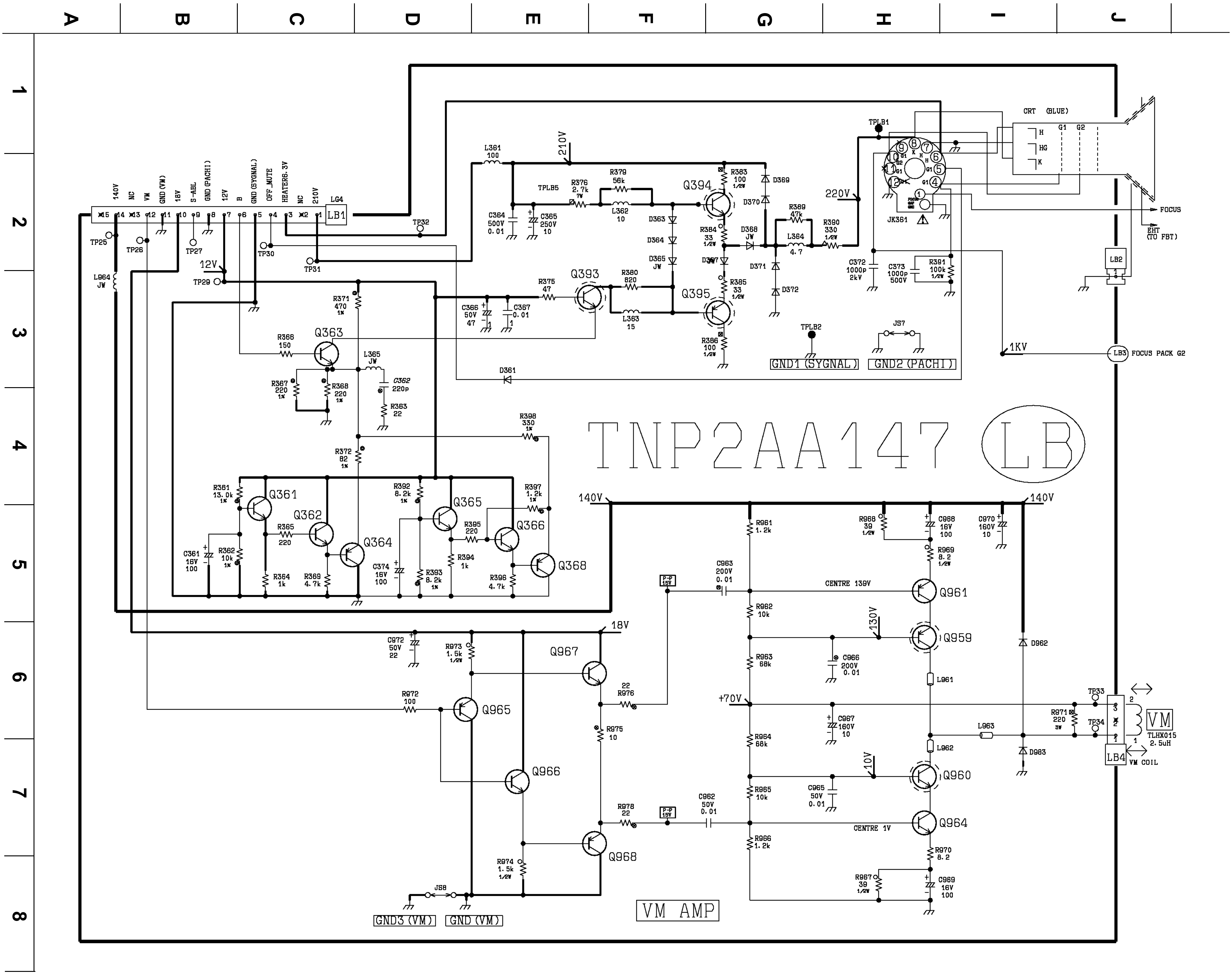
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
TNP2AA146 (LG)
CRT DRIVE GREEN
S-ABL
VM AMP
IC880
LG1
LG2
LG3
LG4
LG5
LG6
LG8
LG10
LR1
LB1
GND1 (SYGNAL)
GND2 (PACHI)
GND3 (VM)
GND (VM)
JS2
JS3
JS4
210V
220V
140V
18V
12V
1kV
130V
10V
+70V
CENTRE 139V
CENTRE 1V
CRT (GREEN)
FOCUS (TO FBT)
EHT
FOCUS PACK G2
JK331
TPLG1
TPLG2
VM
TLHX015 2.5uH
VM COIL
Q331
Q373
Q374
Q375
Q934
Q935
Q936
Q937
Q938
Q941
Q951
Q952
Q953
Q955
Q956
D331
D333
D334
D335
D336
D337
D338
D339
D340
D341
D342
D933
D953
GND
B
R
G
VM
GND (VM)
S-ABL
←+12v
NC
GND (H2)
GND (OF PURI BU)
+18v→
HEATER
GND (140V)
140V (+B OF VM)
140V
18V
12V
GND (PACHI)
GND (SYGNAL)
OFF_MUTE
HEATER6.3V
210V
80mA
IN
OUT
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
TP21
TP22
TP23
TP24
L333 56
L335 100
L336 J/W
L337 56
L339 J/W
L331 10
L332 6.8
L334 4.7
L933
L934
L935
L936 J/W
R331 220
R332 150
R333 220
R334 22
R335 470
R345 47
R347 2.7k
R348 56k
R349 820
R350 100
R351 33
R352 33
R353 100
R354 47k
R356 330
R357 100k
R925 150
R926 150
R928 22
R929 100
R942 1.5k
R943 1.5k
R944 470
R945 470
R946 10
R947 22
R948 1.2k
R949 10k
R950 68K
R951 68K
R952 10k
R953 1.2K
R954 39
R955 39
R956 8.2
R957 8.2
R958 220
R959 470
C331 50V 47
C332 0.01
C333 50V 47
C334 250V 47
C335 220p
C336 50V 47
C337 250V 47
C339 500V 0.01
C340 0.01
C341 250V 10
C345 1000p 2kV
C346 500V 1000p
C939 50V 0.01
C940 200V 0.01
C941 50V 0.01
C942 200V 0.01
C943 160V 10
C944 16V 100
C945 16V 100
C947 160V 10



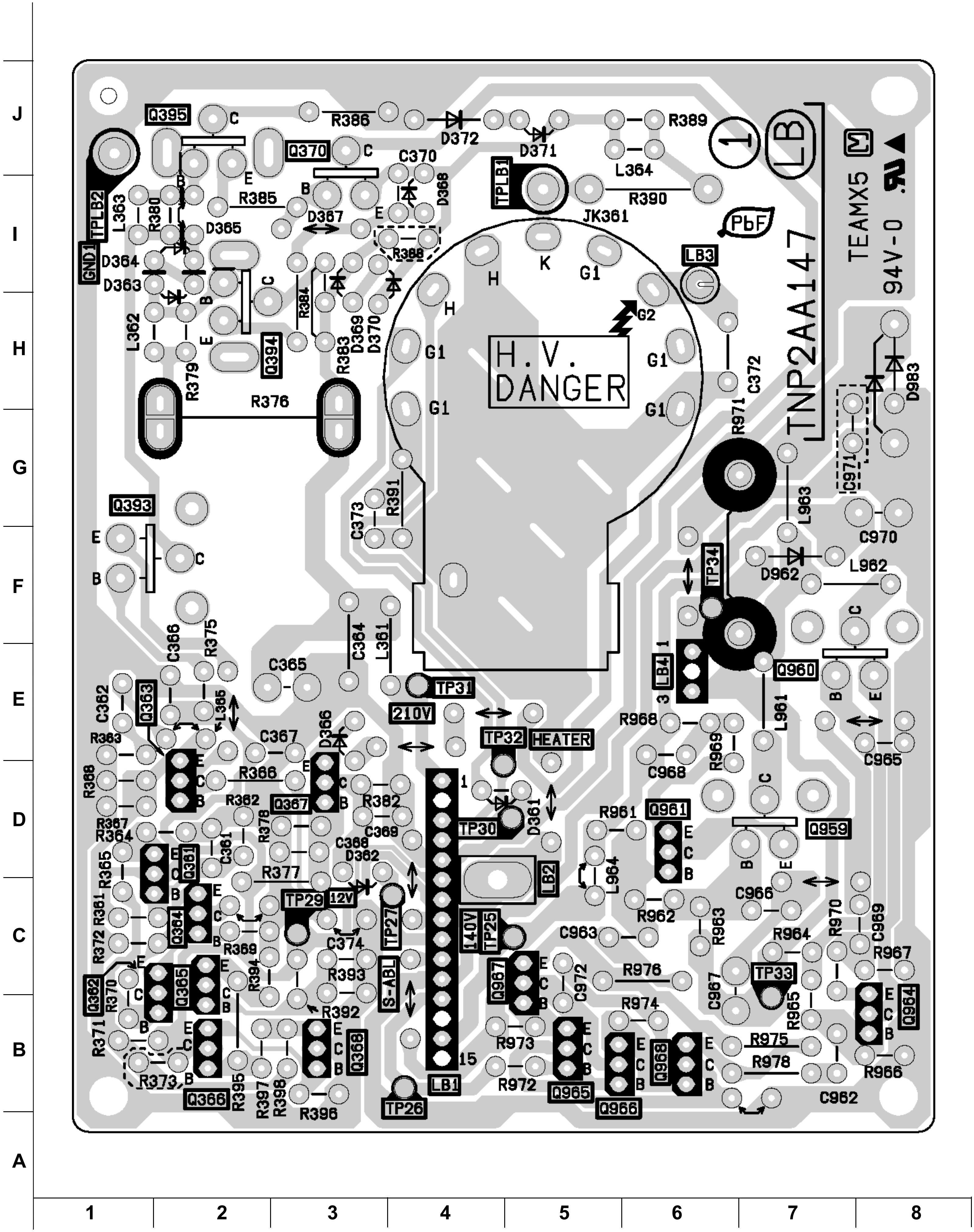
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
GND1
TPLG2
LG3
LG4
TP23
12V
TP24
C337
L335
R345
C336
Q373
C339
C340
C341
R350
Q374
R347
TPLG1
R348
L331
140V
TP13
L339
R959
R945
Q952
Q953
C946
C947
D953
D331
D933
R958
L935
L934
LG8
R926
L933
C346
R357
JK331
H.V.
DANGER
HEATER
TP22
K
G1
G2
H
PbF
TEAMX5
LG
94V-0
TNP2AA146
R353
Q375
D336
D340
R349
L332
R351
D339
R352
D337
D338
D334
D335
C343
Q338
R354
R356
L334
D341
D342
LG5
C345
TP17
LG1
TP20
TP18
Q331
R336
R332
TP16
GND
R333
R335
R331
TP12
VM
L336
C335
R334
L337
TP19
S-ABL
D333
D332
C342
Q334
R346
R343
C338
R342
L938
L936
C331
TP21
210V
L333
C334
C332
C333
IC880
TP15
LG2
TP14
20V
Q951
Q956
Q955
C941
R954
C942
R955
R957
C945
R950
R956
C944
LG6
LG10
GND2
R951
R949
Q941
Q938
R948
C943
R952
C939
R953
C940
R928
Q936
R947
R946
Q935
Q934
R942
R943
R925
R944
R929
Q937
E
C
B

LG-BOARD TNP2AA146 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

LB-BOARD TNP2AA147 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

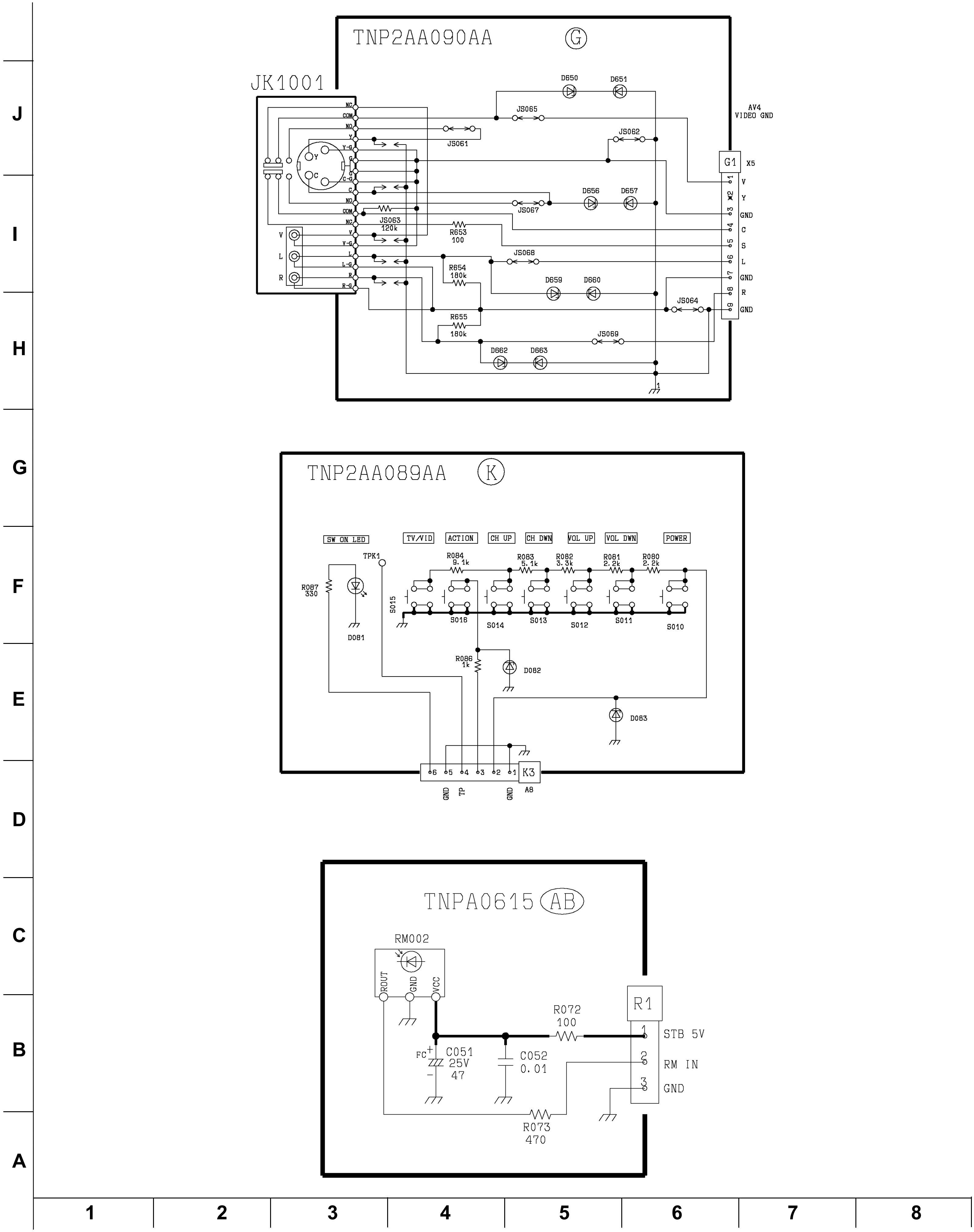


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
TNP2AA147 (LB)
LG4
LB1
140V
NC
VM
GND (VM)
18V
S-ABL
GND (PACHI)
12V
B
GND (SYGNAL)
OFF_MUTE
HEATER6.3V
NC
210V
TP25
TP26
TP27
TP29
TP30
TP31
TP32
L964 JW
12V
210V
L361 100
C364 500V 0.01
C365 250V 10
TPLB5
R376 2.7k
R379 56k
L362 10
D363
D364
D365 JW
Q394
R383 100 1/2W
R384 33 1/2W
D369
D370
D368 JW
D367
D371
D372
R385 33 1/2W
Q395
R386 100 1/2W
R389 47k
L364 4.7
R390 330 1/2W
220V
C372 1000p 2kV
C373 1000p 500V
R391 100k 1/2W
TPLB1
JK361
CRT (BLUE)
H
HG
K
G1
G2
FOCUS
EHT (TO FBT)
LB2
1KV
LB3
FOCUS PACK G2
Q393
R375 47
R380 820
L363 15
C366 50V 47
C367 0.01
TPLB2
JS7
GND1 (SYGNAL)
GND2 (PACHI)
D361
R371 470 1%
Q363
R366 150
L365 JW
C362 220p
R363 22
R367 220 1%
R368 220 1%
R398 330 1%
R372 82 1%
R361 13.0k 1%
Q361
Q362
R365 220
Q364
R362 10k 1%
C361 16V 100
R364 1k
R369 4.7k
R392 8.2k 1%
Q365
R395 220
Q366
R397 1.2k 1%
Q368
C374 16V 100
R393 8.2k 1%
R394 1k
R396 4.7k
140V
140V
R961 1.2k
R968 39 1/2W
C968 16V 100
C970 160V 10
R969 8.2 1/2W
P-P 15V
C963 200V 0.01
CENTRE 139V
Q961
R962 10k
130V
Q959
D962
R963 68k
C966 200V 0.01
L961
+70V
C967 160V 10
R964 68k
L963
R971 220 3W
TP33
TP34
VM
TLHX015 2.5uH
LB4
VM COIL
L962
D963
10V
Q960
R965 10k
C965 50V 0.01
Q964
CENTRE 1V
R966 1.2k
R970 8.2
R967 39 1/2W
C969 16V 100
18V
C972 50V 22
R973 1.5k 1/2W
Q967
22 R976
R975 10
R972 100
Q965
Q966
R978 22
P-P 15V
C962 50V 0.01
Q968
R974 1.5k 1/2W
JS8
GND3 (VM)
GND (VM)
VM AMP

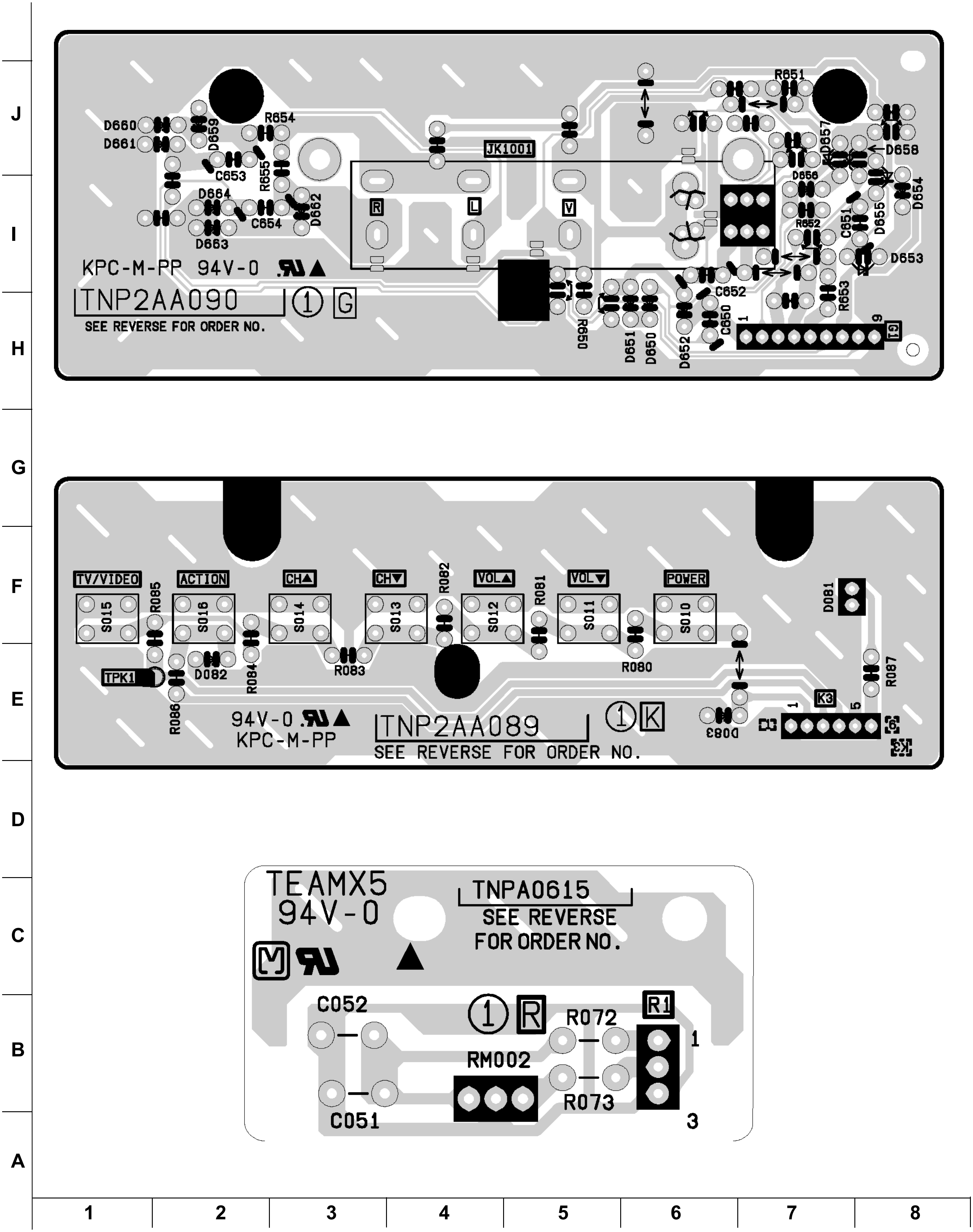


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
Q395
R386
D372
D371
R389
L364
Q370
C370
TPLB1
R390
TPLB2
L363
R380
R385
D367
D368
D365
JK361
PbF
GND1
D364
D363
R388
LB3
K
G1
H
G2
L362
R384
R383
D369
D370
Q394
H.V.
DANGER
R379
R376
C372
TNP2AA147
TEAMX5
94V-0
LB
1
D983
R971
C971
L963
Q393
C373
R391
C970
D962
L962
TP34
C364
L361
C366
R375
C365
LB4
Q960
Q363
C362
L365
TP31
210V
R968
R969
L961
C968
C965
R363
C367
D366
TP32
HEATER
R368
R366
Q367
R382
D361
R961
Q961
Q959
R362
R367
R364
R378
C369
TP30
C361
C368
D362
LB2
L964
R365
Q361
R377
TP29
12V
TP27
C966
R361
Q364
R962
R963
R372
R369
C374
140V
TP25
C963
R964
R970
C969
R967
Q362
R370
Q365
R394
R393
S-ABL
Q967
C972
R976
C967
TP33
R965
Q964
R392
R974
R371
Q368
R973
R975
R978
R966
R373
R395
R397
R398
R396
Q366
TP26
LB1
R972
Q965
Q966
Q968
C962
15

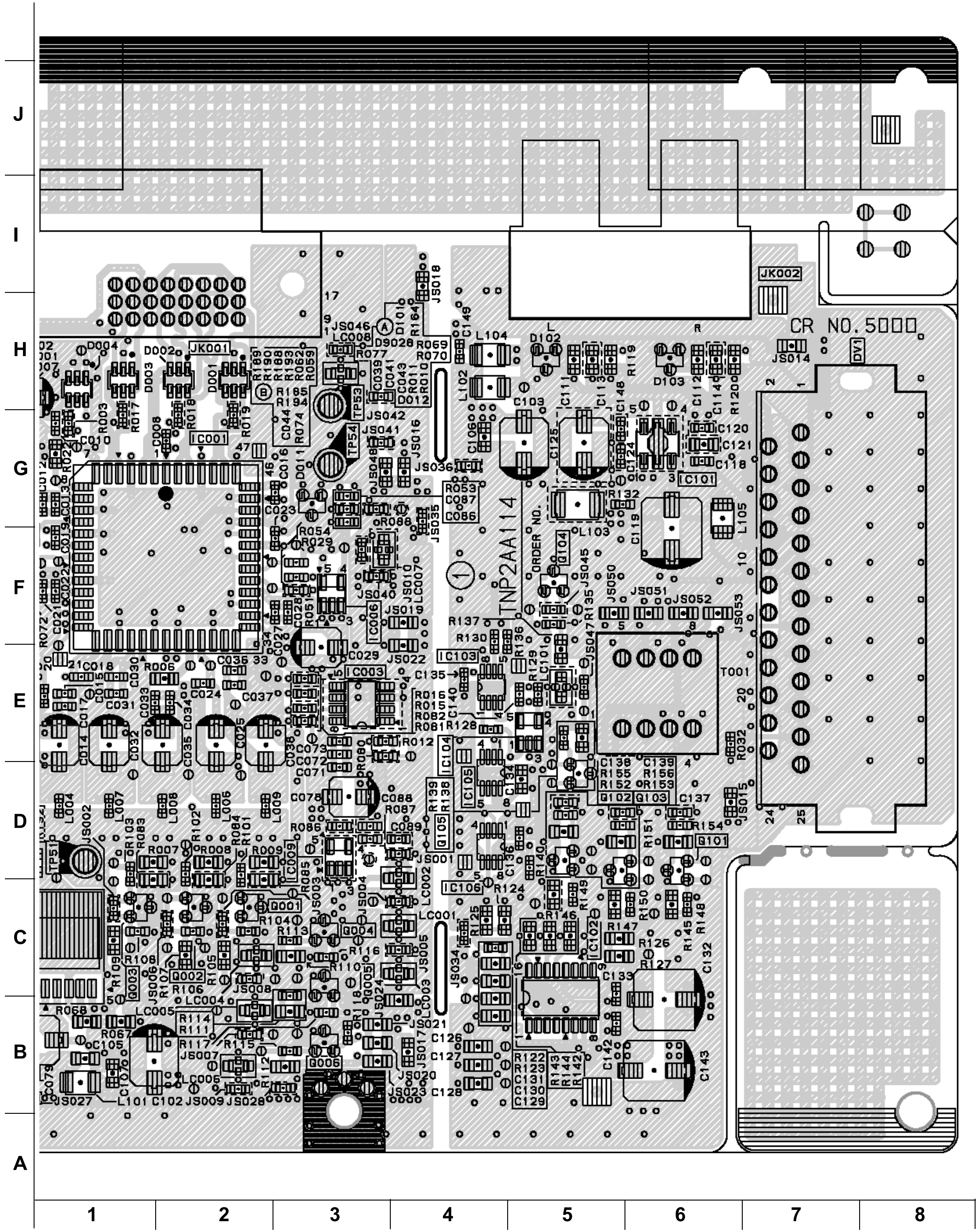
LB-BOARD TNP2AA147 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


TNP2AA090AA
G
JK1001
NC
COM
NO
Y
Y-G
G
G
C-G
C
NO
COM
NC
V
V-G
L
L-G
R
R-G
Y
C
V
L
R
D650
D651
JS065
AV4
VIDEO GND
JS062
JS061
G1
X5
1 V
2 Y
3 GND
4 C
5 S
6 L
7 GND
8 R
9 GND
D656
D657
JS067
JS063
120k
R653
100
JS068
R654
180k
D659
D660
JS064
R655
180k
JS069
D662
D663
1
TNP2AA089AA
K
SW ON LED
TV/VID
ACTION
CH UP
CH DWN
VOL UP
VOL DWN
POWER
TPK1
R084
9.1k
R083
5.1k
R082
3.3k
R081
2.2k
R080
2.2k
R087
330
S015
S016
S014
S013
S012
S011
S010
D081
R086
1k
D082
D083
6
5
4
3
2
1
K3
A8
GND
TP
GND
TNPA0615
AB
RM002
ROUT
GND
VCC
R072
100
R1
1 STB 5V
2 RM IN
3 GND
FC
+
-
C051
25V
47
C052
0.01
R073
470
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8

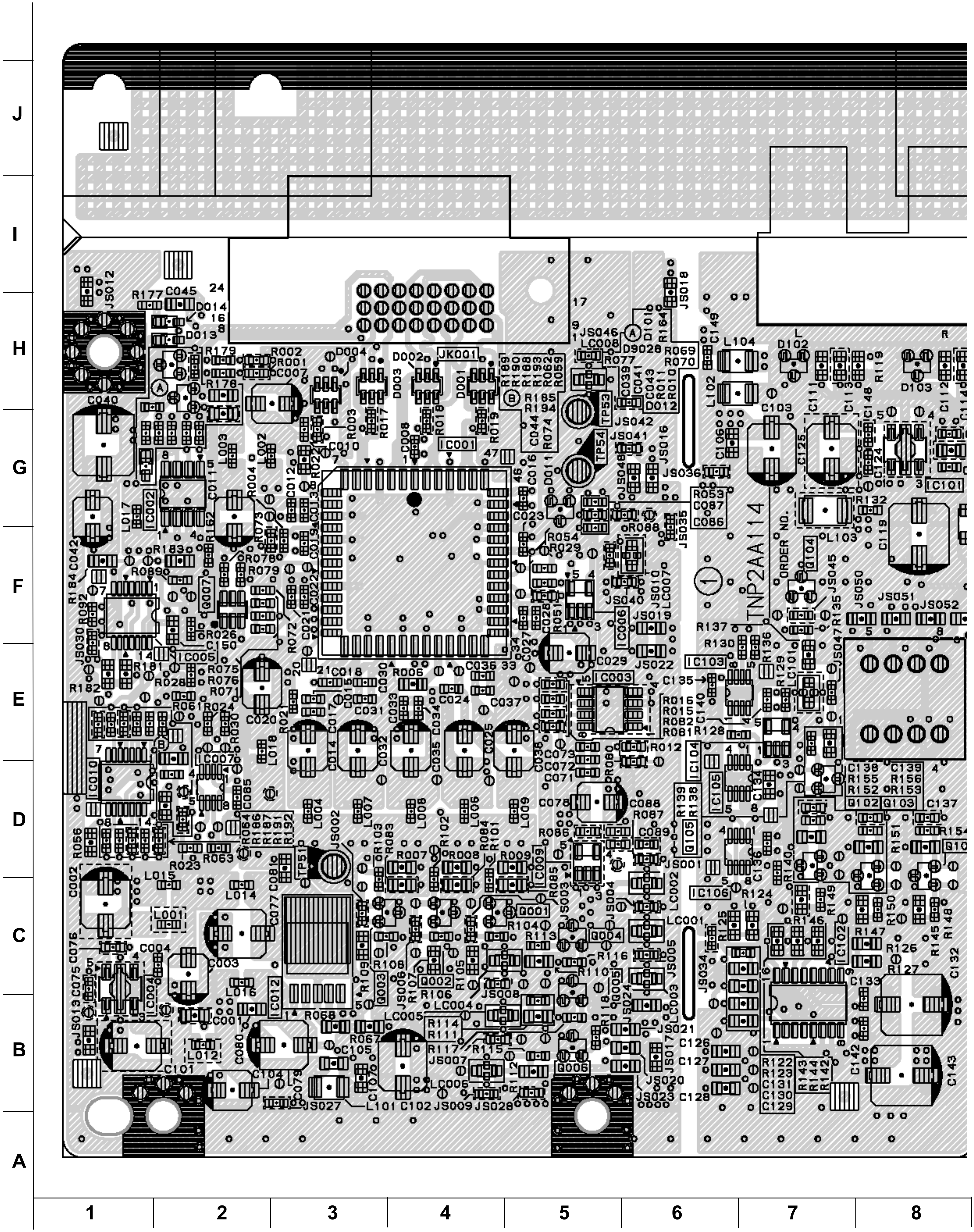
G-BOARD TNP2AA090AA K-BOARD TNP2AA089AA R-BOARD TNPA0615AB PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
D660
D661
D659
R654
C653
R655
D664
C654
D662
D663
KPC-M-PP 94V-0
TNP2AA090
1 G
SEE REVERSE FOR ORDER NO.
JK1001
R
L
V
R651
D657
D658
D656
D654
D655
C651
R652
D653
C652
R653
R650
D651
D650
D652
C650
1
9
G1
TV/VIDEO
ACTION
CH▲
CH▼
VOL▲
VOL▼
POWER
S015
S016
S014
S013
S012
S011
S010
R085
R082
R081
D081
TPK1
D082
R084
R083
R080
R087
R086
94V-0
KPC-M-PP
TNP2AA089
SEE REVERSE FOR ORDER NO.
1 K
D083
K3
1
5
TEAMX5
94V-0
TNPA0615
SEE REVERSE
FOR ORDER NO.
M
C052
1 R
R072
R1
1
RM002
R073
C051
3

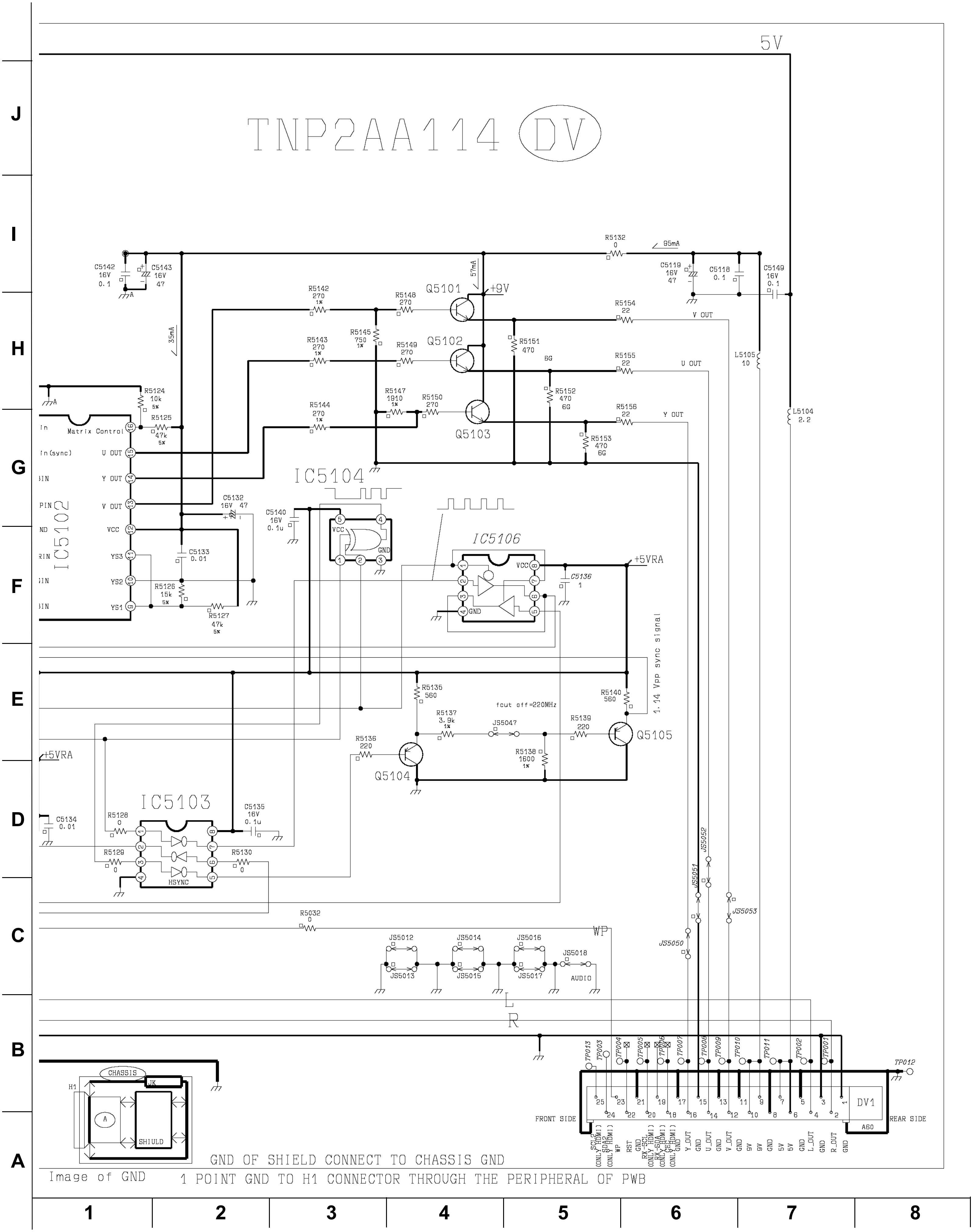
G-BOARD TNP2AA095 K-BOARD TNP2AA089 R-BOARD TNP2A0615 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

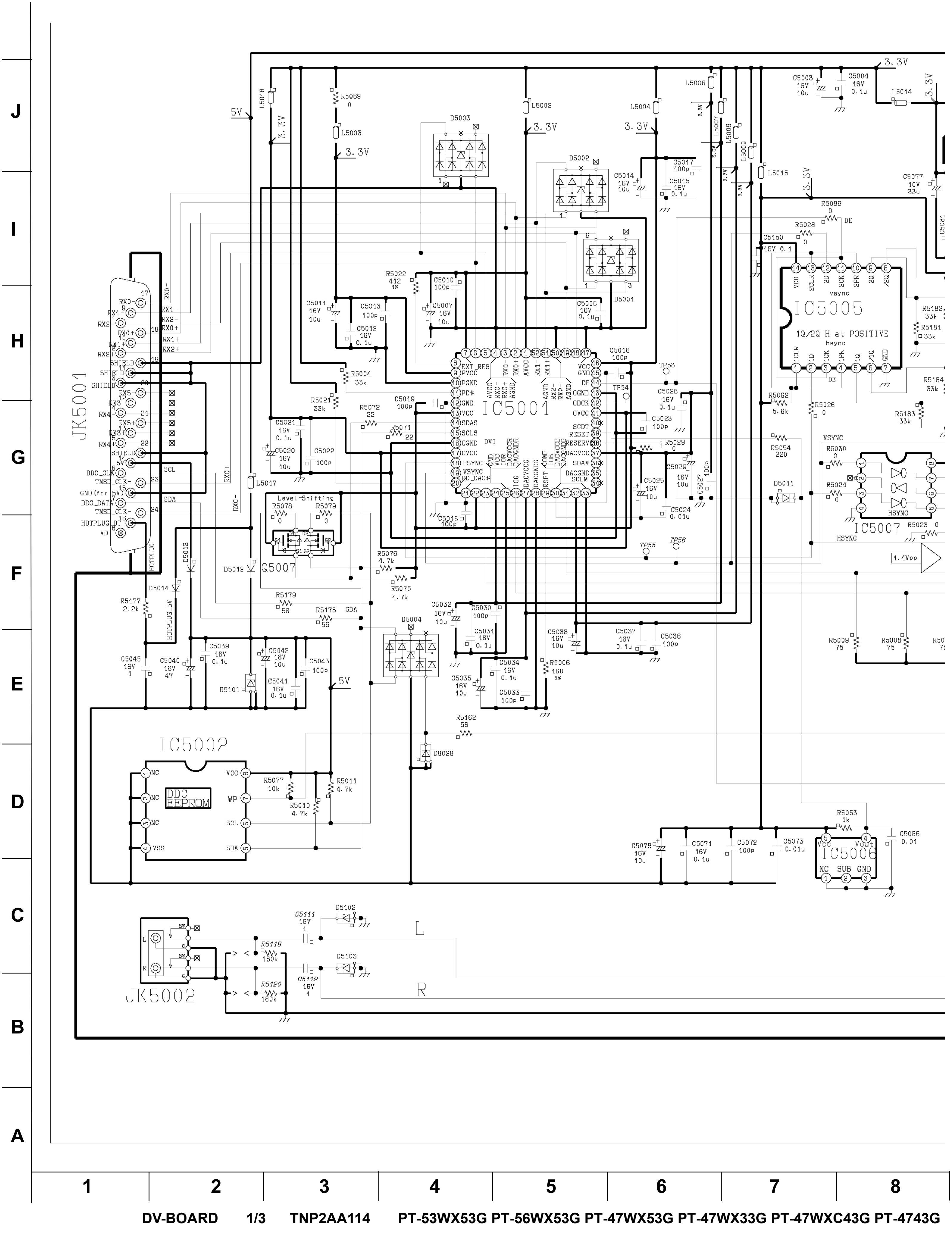

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
TNP2AA114
ORDER NO.
CR NO.5000
JK001
JK002
IC001
IC003
IC006
IC101
IC102
IC103
IC104
IC105
IC106
T001
DV1
L103
L104
L105
TP51
TP53
TP54

DV-BOARD TOP-VIEW 2/2 TNP2AA114 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

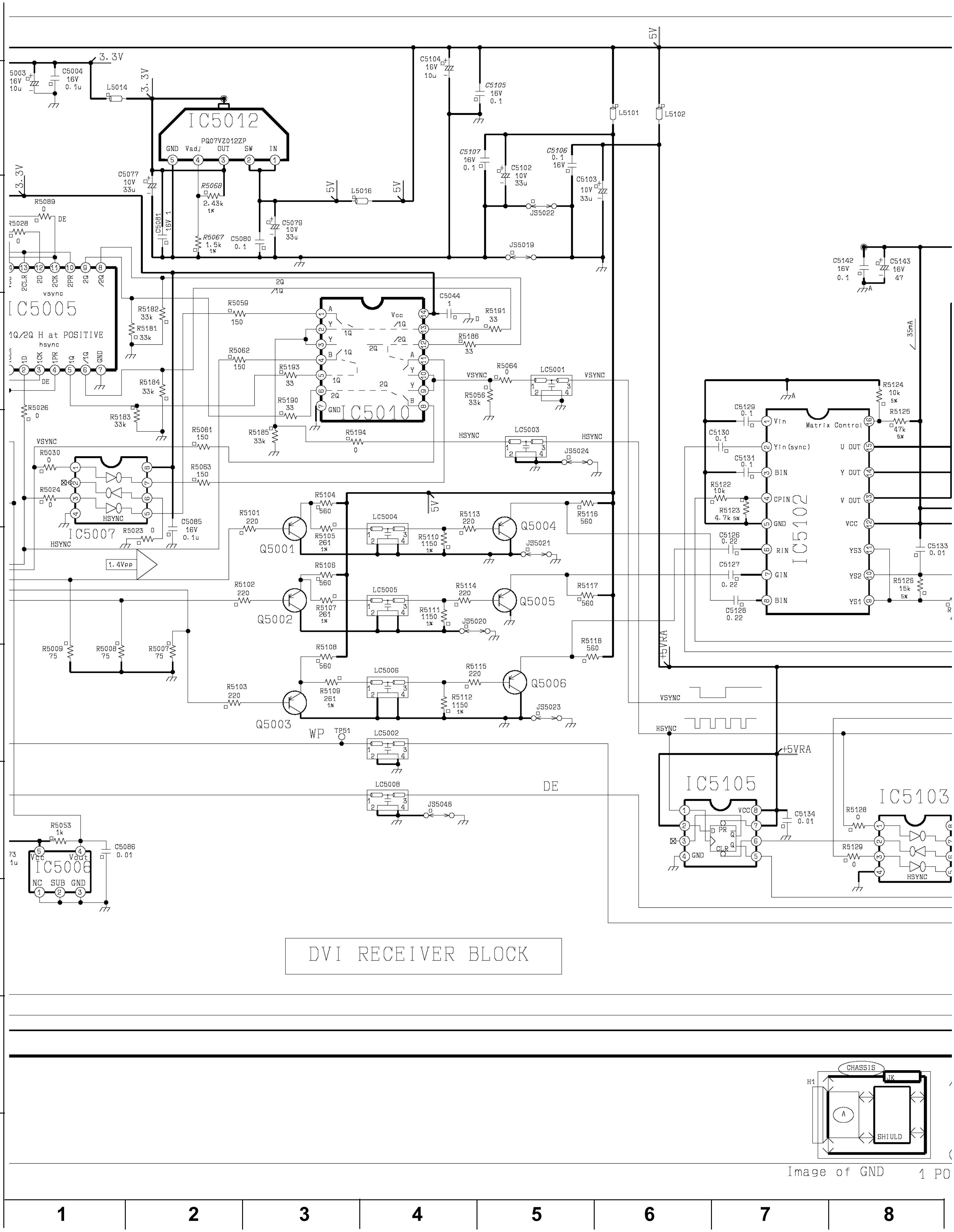

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
TNP2AA114
ORDER NO.
JK001
IC001
IC002
IC003
IC005
IC007
IC010
IC012
IC101
IC102
IC103
IC104
IC105
IC106
TP51
TP53
TP54

DV-BOARD TOP-VIEW 1/2 TNP2AA114 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


TNP2AA114 DV
5V
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
R5132 0
95mA
C5142 16V 0.1
C5143 16V 47
C5119 16V 47
C5118 0.1
C5149 16V 0.1
57mA
+9V
Q5101
Q5102
Q5103
Q5104
Q5105
R5142 270 1%
R5143 270 1%
R5144 270 1%
R5145 750 1%
R5147 1910 1%
R5148 270
R5149 270
R5150 270
R5151 470
6G
R5152 470 6G
R5153 470 6G
R5154 22
R5155 22
R5156 22
V OUT
U OUT
Y OUT
L5105 10
L5104 2.2
35mA
R5124 10k 5%
R5125 47k 5%
Matrix Control
In
In(sync)
U OUT
Y OUT
V OUT
VCC
YS3
YS2
YS1
IC5102
C5132 16V 47
C5133 0.01
R5126 15k 5%
R5127 47k 5%
IC5104
C5140 16V 0.1u
VCC
GND
IC5106
VCC
GND
+5VRA
C5136 1
1.14 Vpp sync signal
R5135 560
R5137 3.9k 1%
JS5047
fcut off=220MHz
R5138 1600 1%
R5139 220
R5140 560
R5136 220
+5VRA
C5134 0.01
IC5103
R5128 0
R5129 0
R5130 0
C5135 16V 0.1u
HSYNC
R5032 0
WP
JS5012
JS5013
JS5014
JS5015
JS5016
JS5017
JS5018
AUDIO
L
R
JS5050
JS5051
JS5052
JS5053
TP013
TP003
TP004
TP005
TP006
TP007
TP008
TP009
TP010
TP011
TP002
TP001
TP012
FRONT SIDE
REAR SIDE
DV1
A60
SCL2 (ONLY HDMI)
SDA2 (ONLY HDMI)
WP
RST
GND
RX-SCL (ONLY HDMI)
RX-SDA (ONLY HDMI)
CEC (ONLY HDMI)
GND
Y_OUT
GND
U_OUT
GND
V_OUT
GND
9V
9V
GND
5V
5V
GND
L_OUT
GND
R_OUT
GND
CHASSIS
JK
H1
A
SHIULD
GND OF SHIELD CONNECT TO CHASSIS GND
Image of GND
1 POINT GND TO H1 CONNECTOR THROUGH THE PERIPHERAL OF PWB


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
JK5001
JK5002
IC5001
DVI
IC5002
DDC EEPROM
IC5005
1Q/2Q H at POSITIVE
vsync
hsync
IC5006
IC5007
HSYNC
VSYNC
Q5007
Level-Shifting
5V
3.3V
L5018
L5002
L5003
L5004
L5006
L5007
L5008
L5009
L5014
L5015
L5017
R5069
0
D5001
D5002
D5003
D5004
D5011
D5012
D5013
D5014
D5101
D5102
D5103
D9026
C5003
16V
10u
C5004
16V
0.1u
C5077
10V
33u
C5014
16V
10u
C5015
16V
0.1u
C5017
100p
C5010
100p
C5007
16V
10u
C5008
16V
0.1u
C5011
16V
10u
C5012
16V
0.1u
C5013
100p
R5022
412
1%
R5004
33k
R5021
33k
R5072
22
R5071
22
C5019
100p
C5016
100p
C5026
16V
0.1u
C5023
100p
C5020
16V
10u
C5021
16V
0.1u
C5022
100p
R5029
0
C5025
16V
10u
C5027
100p
C5029
16V
10u
C5024
0.01u
C5018
100p
TP53
TP54
TP55
TP56
R5078
0
R5079
0
R5076
4.7k
R5075
4.7k
R5179
56
R5178
56
R5177
2.2k
HOTPLUG_5V
HOTPLUG
SCL
SDA
RXC+
RXC-
C5032
16V
10u
C5030
100p
C5031
16V
0.1u
C5035
16V
10u
C5034
16V
0.1u
C5033
100p
C5038
16V
10u
C5037
16V
0.1u
C5036
100p
R5006
160
1%
C5039
16V
0.1u
C5042
16V
10u
C5043
100p
C5041
16V
0.1u
C5040
16V
47
C5045
16V
1
R5162
56
R5077
10k
R5010
4.7k
R5011
4.7k
NC
VSS
VCC
WP
SCL
SDA
C5078
16V
10u
C5071
16V
0.1u
C5072
100p
C5073
0.01u
R5053
1k
C5086
0.01
Vcc
Vout
NC
SUB
GND
R5089
0
DE
R5028
0
C5150
16V 0.1
R5182
33k
R5181
33k
R5184
33k
R5183
33k
R5092
5.6k
R5026
0
R5054
220
R5030
0
R5024
0
R5023
0
1.4Vpp
R5009
75
R5008
75
C5111
16V
1
C5112
16V
1
R5119
180k
R5120
180k
L
R
SW
G
RX0-
RX0+
RX1-
RX1+
RX2-
RX2+
RX3-
RX3+
RX4-
RX4+
RX5-
RX5+
SHIELD
DDC_CLK
DDC_DATA
TMSD_CLK+
TMSD_CLK-
GND (for 5V)
HOTPLUG_DT
VD
EXT_RES
PVCC
PGND
PD#
GND
VCC
SDAS
SCLS
OGND
OVCC
HSYNC
VSYNC
PD_DAC#
AVCC
RXC-
RXC+
AGND
DE
ODCK
RESET
RESERVED
DACVCC
SDAM
DACGND
SCLM
SCDT
IOG
DACVCCG
DACGNDG
RSET
COMP
IOB
DACVCCB
DACGNDB
IOR
DACVCCR
DACGNDR
VDD
2CLR
2D
2CK
2PR
2Q
1CLR
1D
1CK
1PR
1Q
GND

DV-BOARD 1/3 TNP2AA114 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


DVI RECEIVER BLOCK
IC5012
PQ07VZ012ZP
GND Vadj OUT SW IN
IC5005
1Q/2Q H at POSITIVE
vsync
hsync
IC5010
IC5007
IC5006
IC5102
Matrix Control
Vin
Yin(sync)
BIN
CPIN
GND
RIN
GIN
U OUT
Y OUT
V OUT
VCC
YS3
YS2
YS1
IC5105
IC5103
Q5001
Q5002
Q5003
Q5004
Q5005
Q5006
LC5001
LC5002
LC5003
LC5004
LC5005
LC5006
LC5008
L5014
L5016
L5101
L5102
3.3V
5V
+5VRA
VSYNC
HSYNC
WP
TP51
DE
1.4Vpp
35mA
JS5019
JS5020
JS5021
JS5022
JS5023
JS5024
JS5048
CHASSIS
JK
H1
A
SHIULD
Image of GND
1 PO
J
I
H
G
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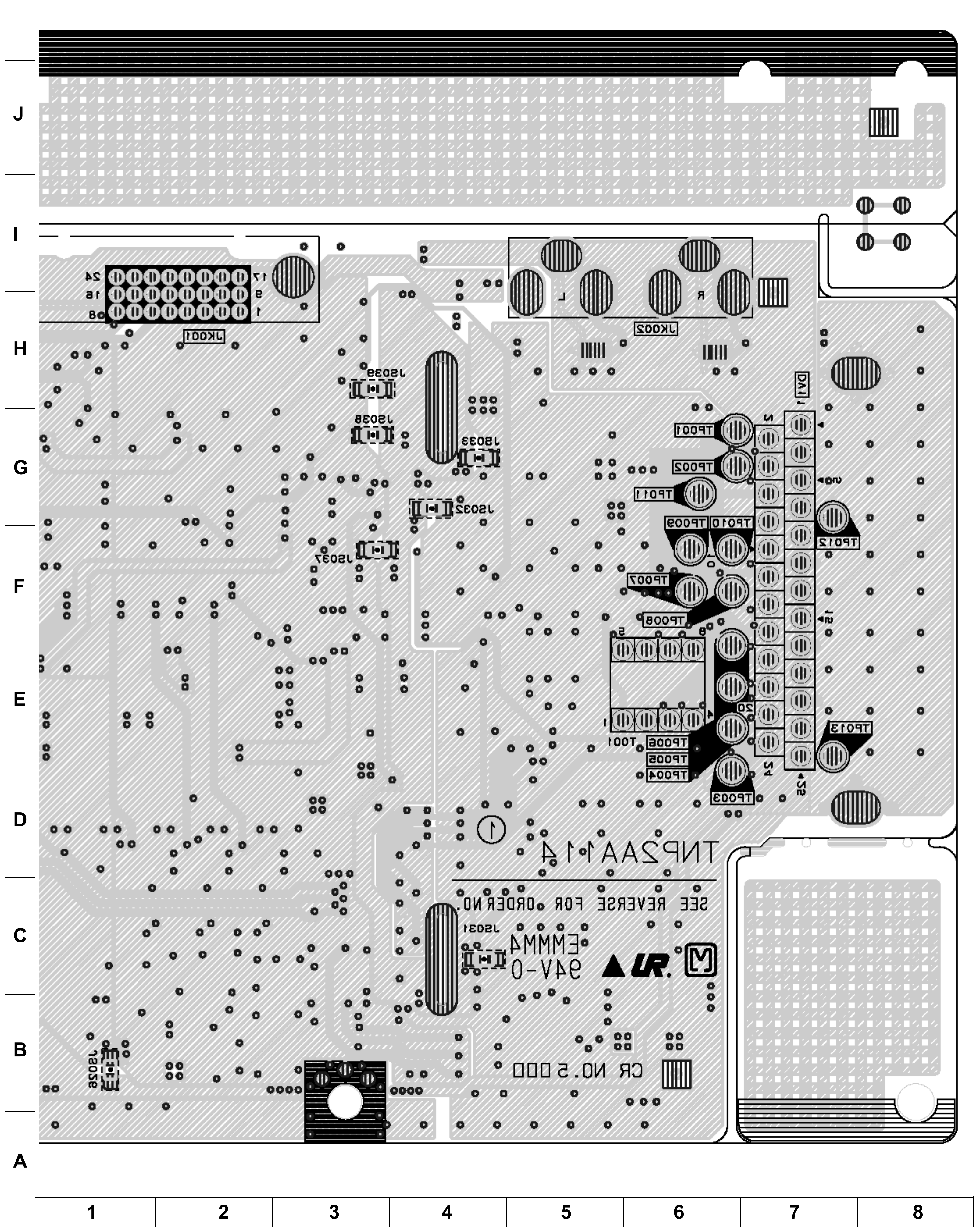
J
I
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F
E
D
C
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A
1
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3
4
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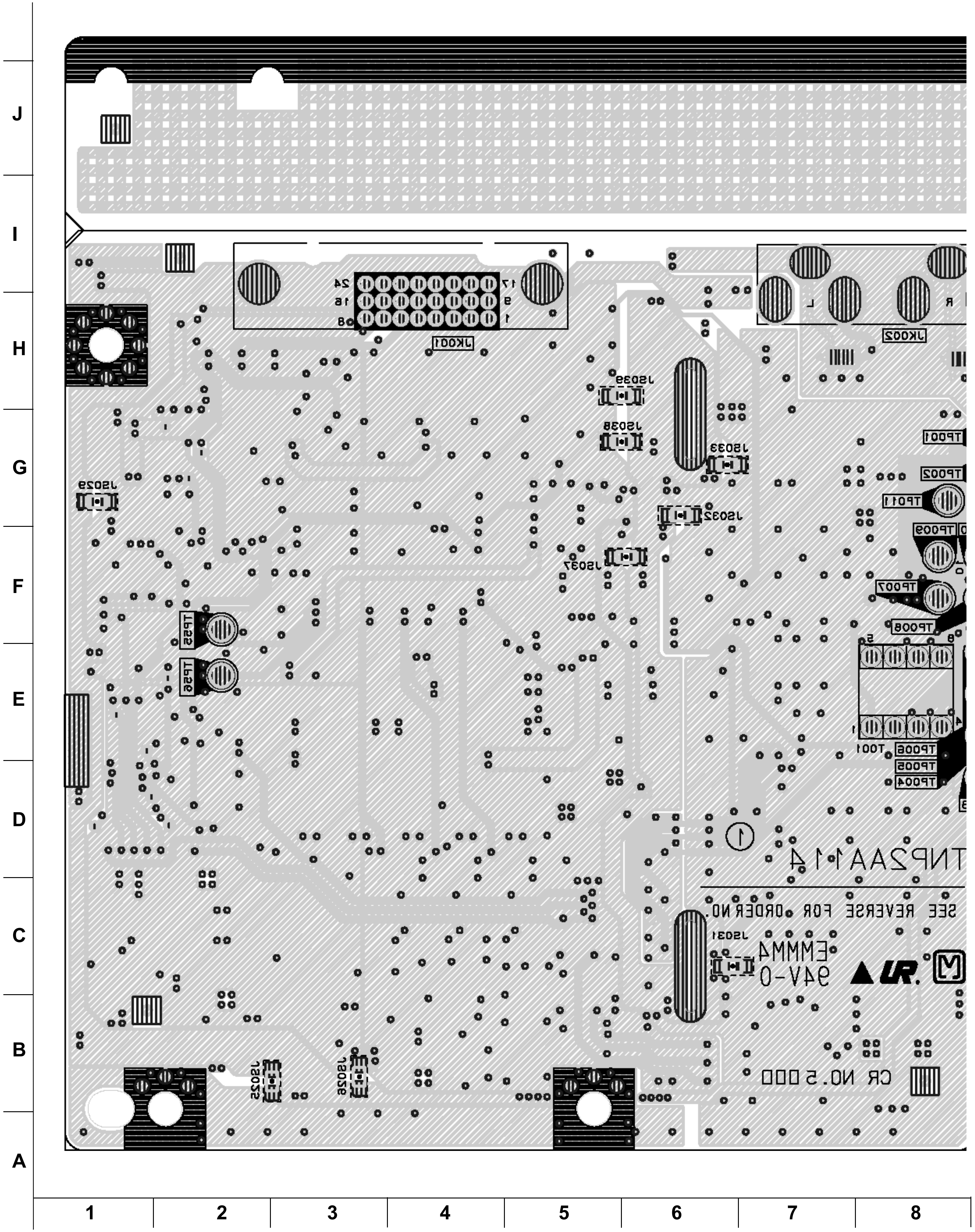
6
7
8
JK001
JK002
L
R
JS039
JS038
JS033
JS032
JS037
JS031
JS026
TP001
TP002
TP003
TP004
TP005
TP006
TP007
TP008
TP009
TP010
TP011
TP012
TP013
T001
DA1
TNP2AA114
SEE REVERSE FOR ORDER NO.
EMMM4
94V-0
CR NO.5000

DV-BOARD BOTTOM-VIEW 2/2 TNP2AA114 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


J
I
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D
C
B
A
1
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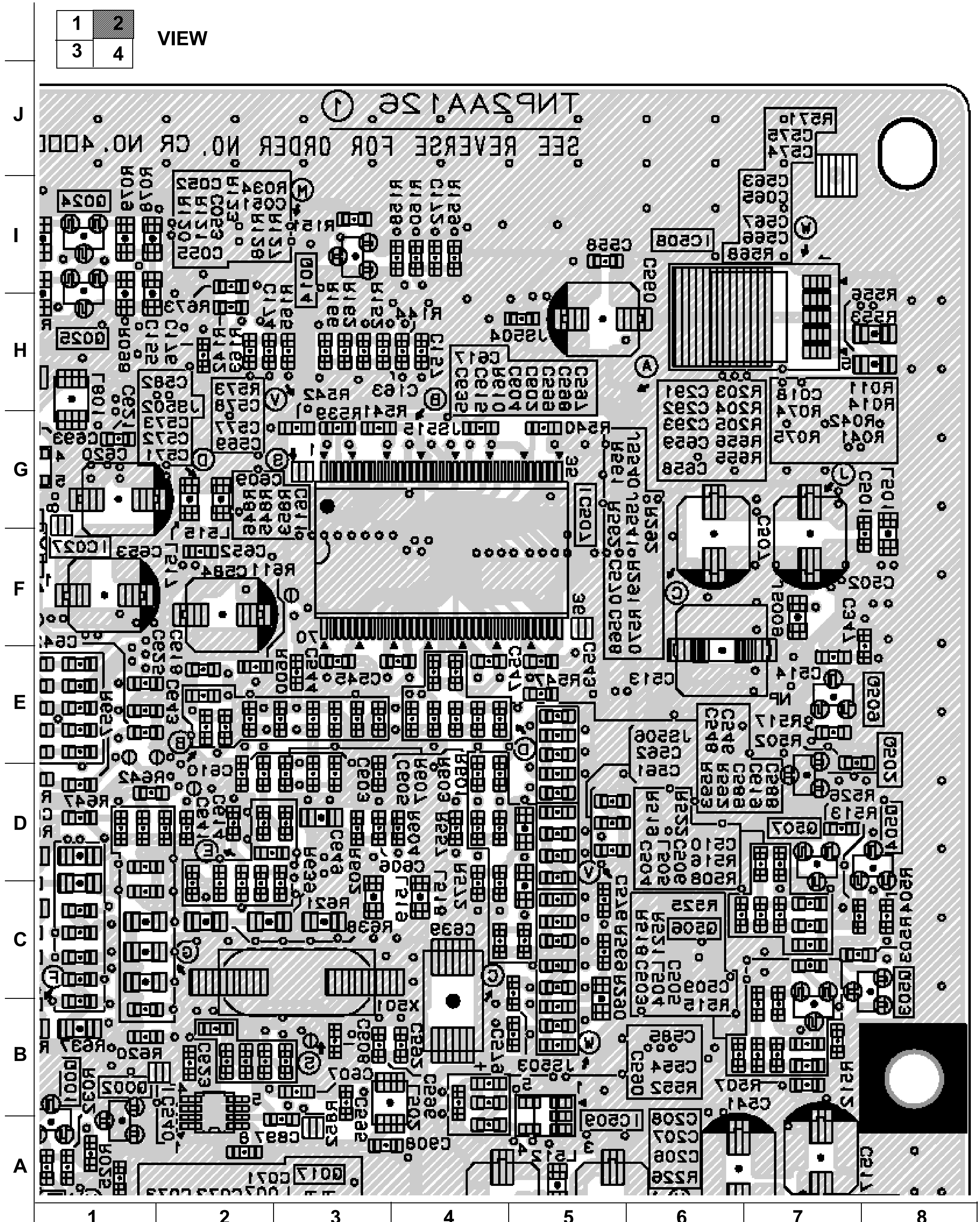
3
4
5
6
7
8
JK001
24
16
8
17
9
1
JK002
L
R
JS039
JS038
JS033
JS032
JS037
JS029
JS031
JS025
JS026
TP001
TP002
TP011
TP009
TP007
TP008
TP006
TP005
TP004
T001
TP55
TP56
TNP2AA114
SEE REVERSE FOR ORDER NO.
EMMM4
94V-0
CR NO.5000

DV-BOARD BOTTOM-VIEW 1/2 TNP2AA114 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


1
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VIEW
J
I
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G
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C
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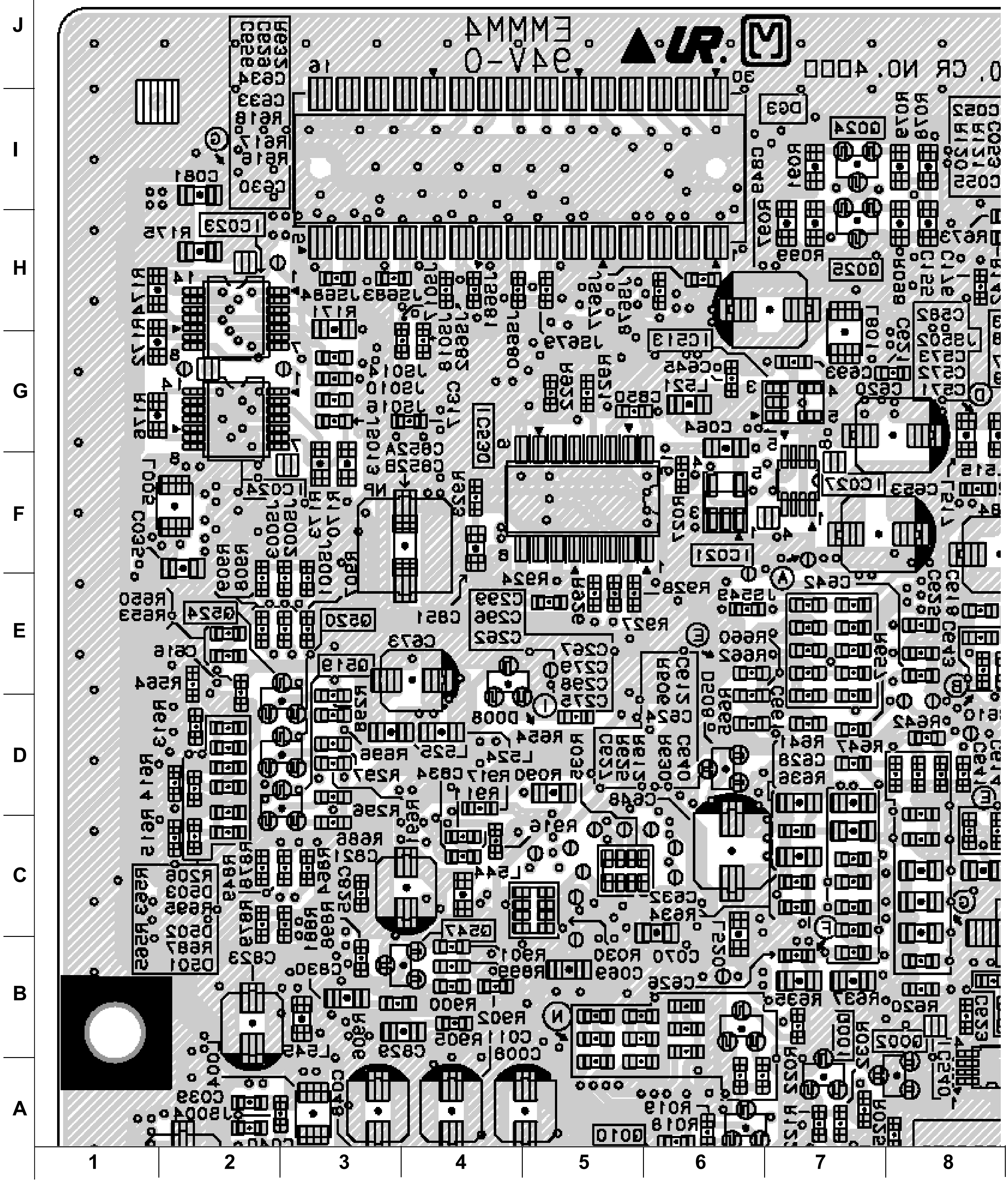
DG-BOARD TOP-VIEW 2/4 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

1	2
3	4

VIEW


J
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D
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8

DG-BOARD TOP-VIEW 1/4 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

J

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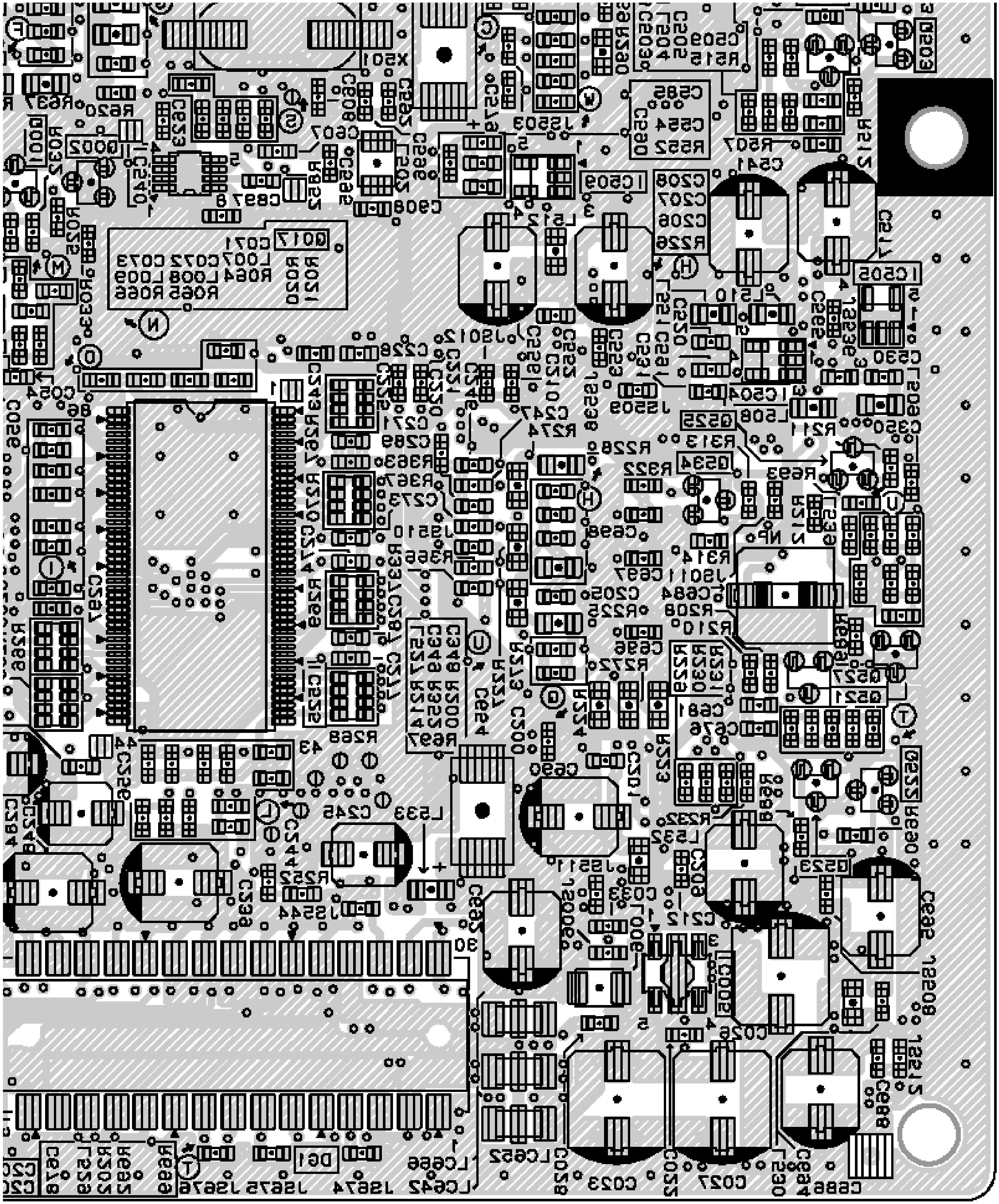
B


X501
J5503
IC509
IC505
IC504
L508
Q525
Q534
J5509
J5510
J5511
J5544
J5574
J5575
J5576
IC001
IC002
L533
C245
C690
C023
C027
C028
DG1
LC652
LC666
LC642
30

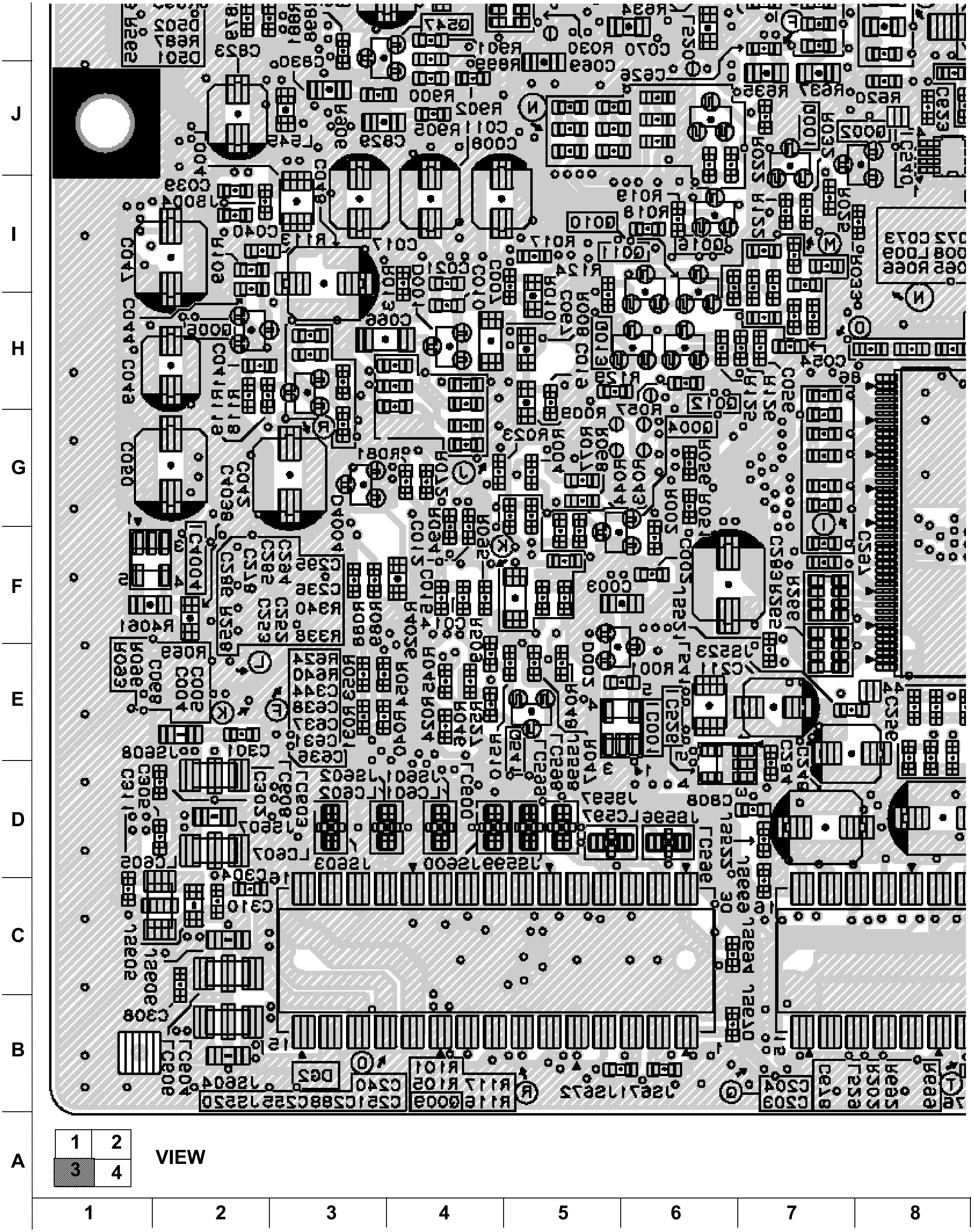
A

1	2
3	▨ 4

VIEW

1	2	3	4	5	6	7	8

DG-BOARD TOP-VIEW 4/4 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


J
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VIEW
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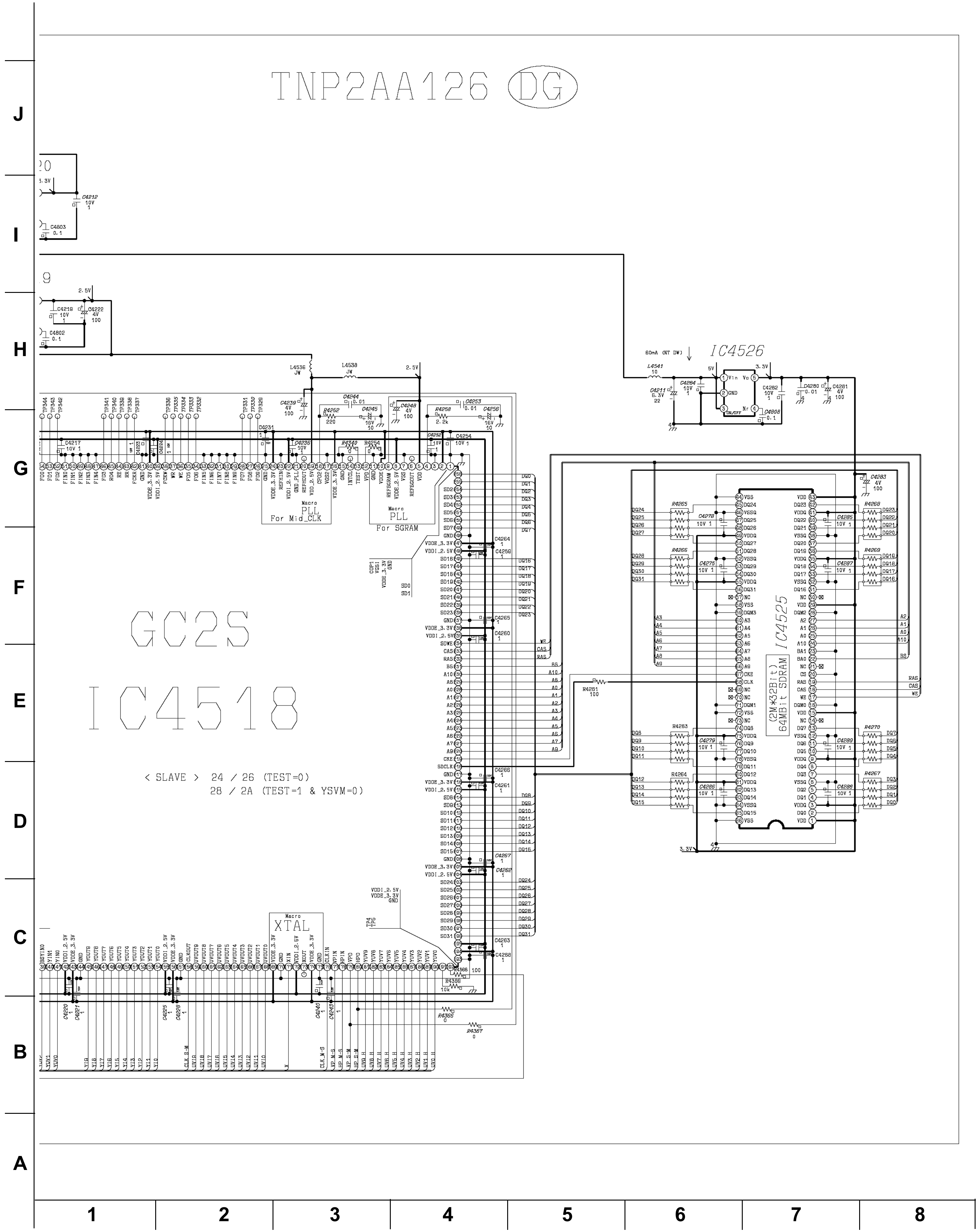
TNP2AA126 DG
GC2S
IC4518
< SLAVE > 24 / 26 (TEST=0)
28 / 2A (TEST=1 & YSVM=0)
Macro PLL For Mid_CLK
Macro PLL For SGRAM
Macro XTAL
IC4525
(2M*32Bit) 64MBit SDRAM
IC4526
60mA (NT DW)
Vin Vo GND Nr ON/OFF
5V
3.3V
2.5V
L4536 JW
L4538 JW
L4541 10
C4211 6.3V 22
C4264 10V 1
C4282 10V 1
C4280 0.01
C4281 4V 100
C4808 0.1
C4283 4V 100
C4212 10V 1
C4803 0.1
C4218 10V 1
C4222 4V 100
C4802 0.1
C4239 4V 100
C4244 0.01
R4252 220
C4245 16V 10
C4248 4V 100
R4258 2.2k
C4253 0.01
C4256 16V 10
C4217 10V 1
C4231 1
C4236 10V 1
R4340 0
R4254 0
C4252 10V 1
C4254 10V 1
C4264 1
C4259 1
C4265 1
C4260 1
C4266 1
C4261 1
C4267 1
C4262 1
C4263 1
C4268 1
R4261 100
R4265
R4266
R4263
R4264
R4268
R4269
R4270
R4267
C4278 10V 1
C4275 10V 1
C4279 10V 1
C4286 10V 1
C4285 10V 1
C4287 10V 1
C4289 10V 1
C4288 10V 1
R4366 100
R4369 10k
R4365 0
R4367 0
C4220 1
C4221 1
C4225 1
C4228 1
C4240 1
C4243 1
J
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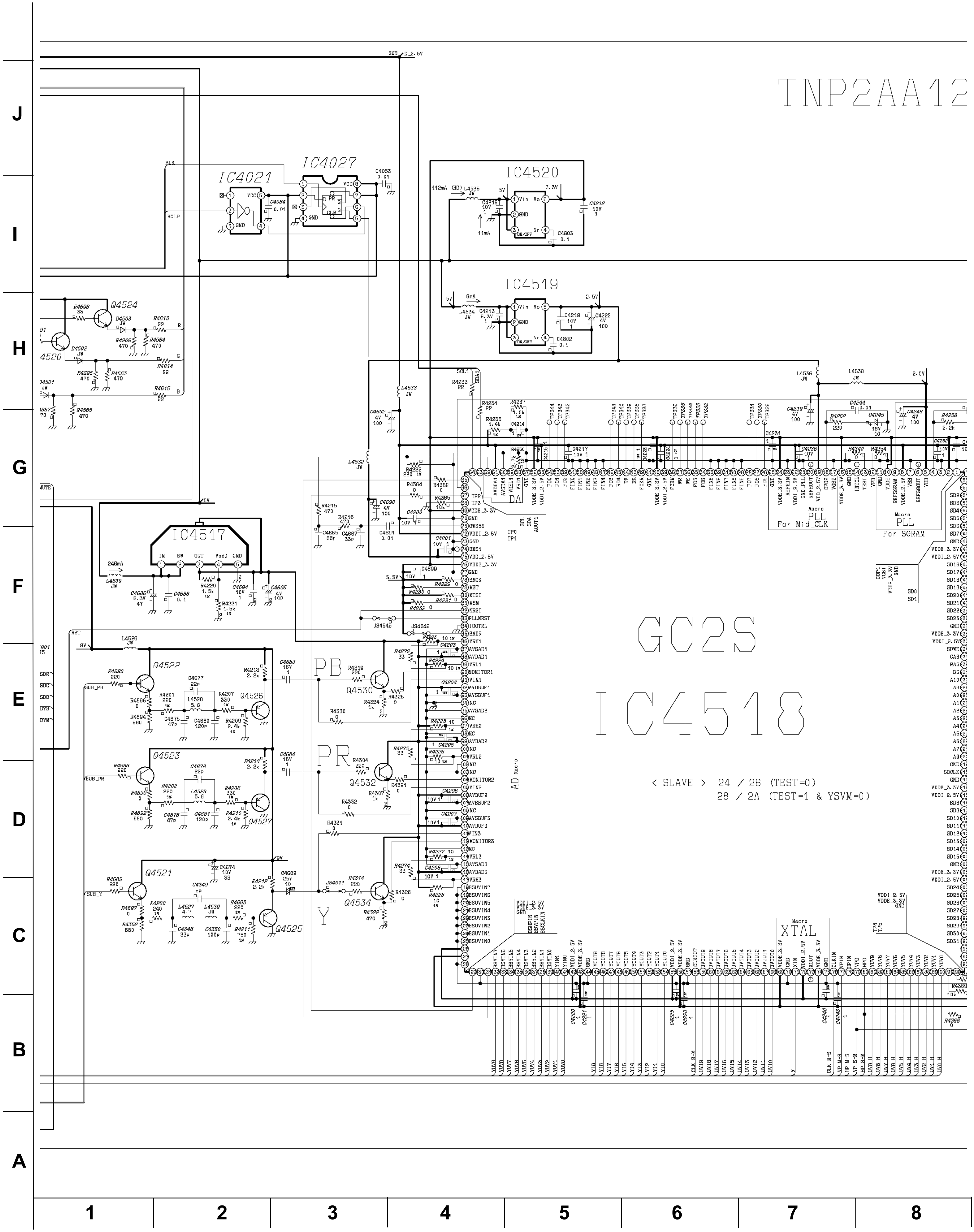
TNP2AA12
SUB_D_2.5V
IC4021
IC4027
IC4520
IC4519
IC4517
Q4524
Q4522
Q4523
Q4521
Q4526
Q4527
Q4525
Q4530
Q4532
Q4534
PB
PR
Y
SUB_PB
SUB_PR
SUB_Y
BLK
HCLP
112mA (HD)
L4535
5V
3.3V
2.5V
8mA
11mA
246mA
GC2S
IC4518
< SLAVE > 24 / 26 (TEST=0)
28 / 2A (TEST=1 & YSVM=0)
AD Macro
DA
Macro PLL For Mid_CLK
Macro PLL For SGRAM
Macro XTAL
J
I
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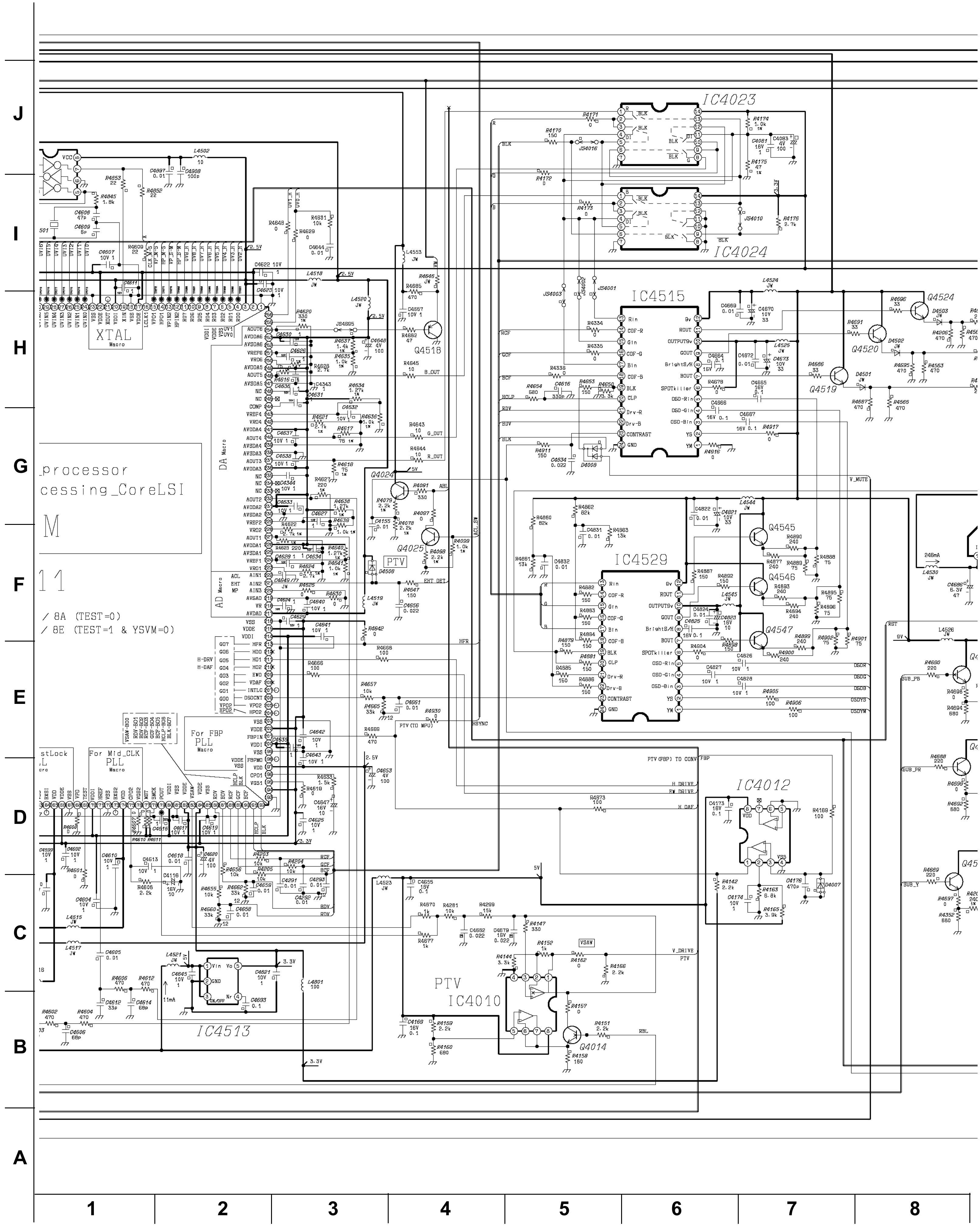
J
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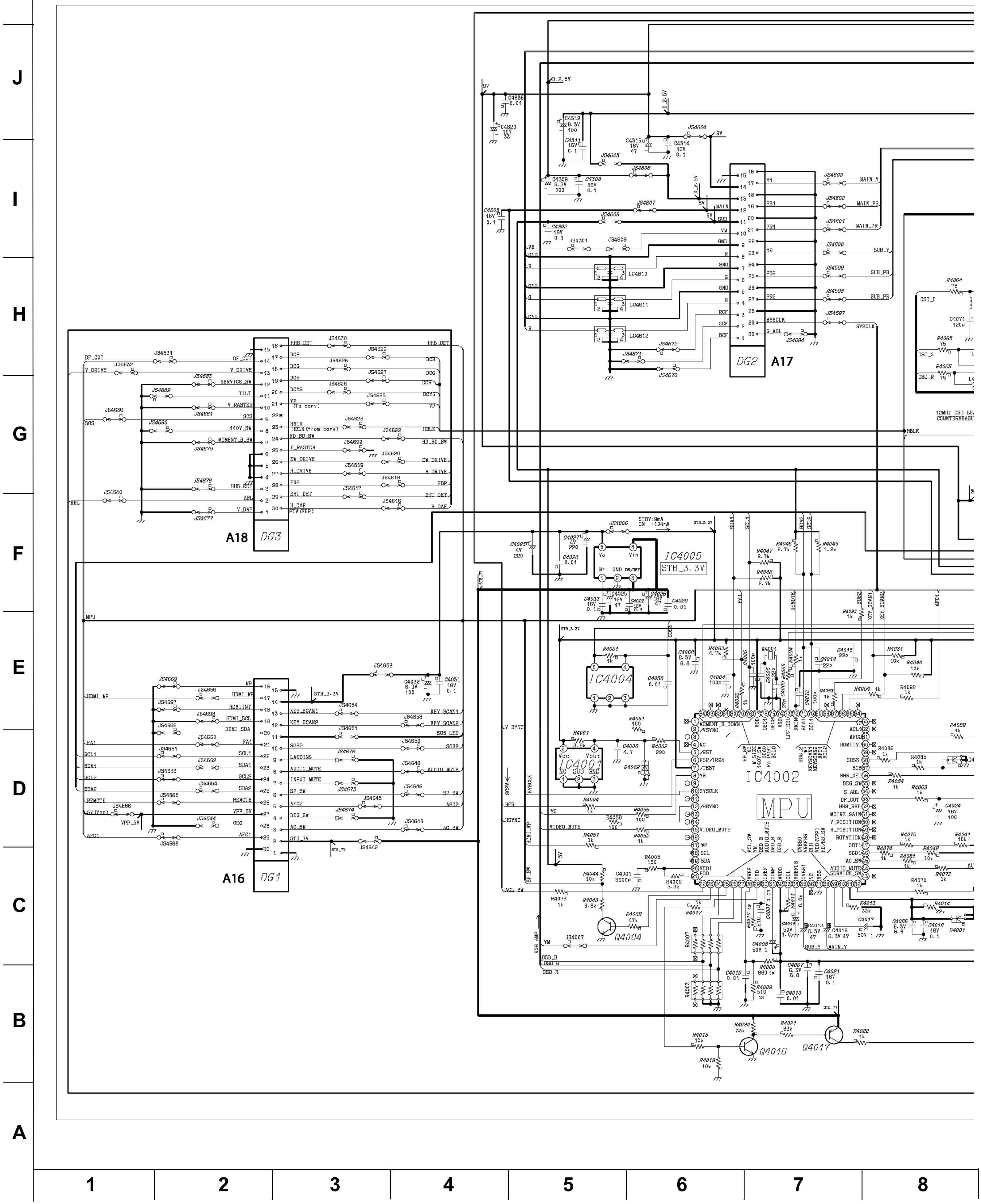
6
7
8
IC4023
IC4024
IC4515
IC4529
IC4012
IC4010
IC4513
PTV
Q4518
Q4024
Q4025
Q4524
Q4520
Q4519
Q4545
Q4546
Q4547
Q4014
XTAL
DA Macro
AD Macro
For FBP PLL Macro
For Mid_CLK PLL Macro
_processor
cessing_CoreLSI
/ 8A (TEST=0)
/ 8E (TEST=1 & YSVM=0)
PTV(FBP) TO CONV FBP
H DRIVE
FW DRIVE
H DAF
V_DRIVE
V_MUTE
HFR
HSYNC
PTV (TO MPU)
EHT DET
ABL
ACL_SW
B_OUT
G_OUT
R_OUT
SUB_PB
SUB_PR
SUB_Y
VSAW
RBL
OSDR
OSDG
OSDB
OSDYS
OSDYM
2.5V
3.3V
5V
9V

DG-BOARD 4/6 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G



J
I
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G
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C
B
A
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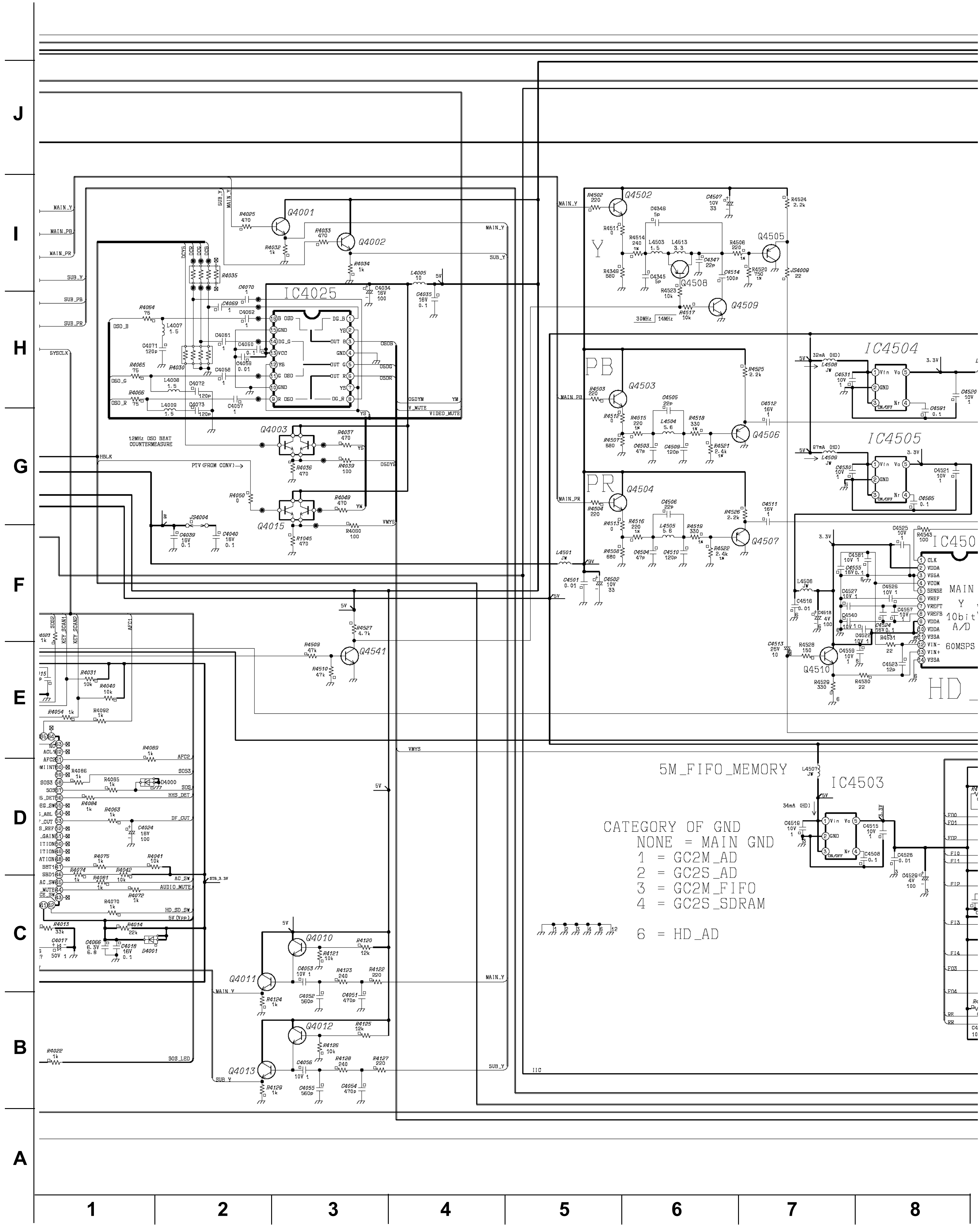
5
6
7
8
A16
DG1
A17
DG2
A18
DG3
IC4002
MPU
IC4004
IC4001
IC4005
STB_3.3V
Q4004
Q4016
Q4017
LC4610
LC4611
LC4612
X4001
D4002
D4001
STBY:9mA
ON :104mA
12MHz OSD BEA
COUNTERMEASU
MAIN_Y
MAIN_PB
MAIN_PR
SUB_Y
SUB_PB
SUB_PR
SYSCLK
HBLK
MPU
ABL
SOS
DF_CUT
V_DRIVE
HDMI_WP
FA1
SCL1
SDA1
SCL2
SDA2
REMOTE
5V(Vpp)
AFC1
HHS_DET
DCB
DCG
DCR
DCYS
VP
HD_SD_SW
EW_DRIVE
H_DRIVE
FBP
EHT_DET
H_DAF
KEY_SCAN1
KEY_SCAN2
SOS_LED
SOS2
AUDIO_MUTE
SP_SW
AFC2
AC_SW
V_SYNC
HFR
HSYNC
ACL_SW
RGB AMP
OSD_B
OSD_G
OSD_R

DG-BOARD 1/6 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


J
I
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D
C
B
A
1
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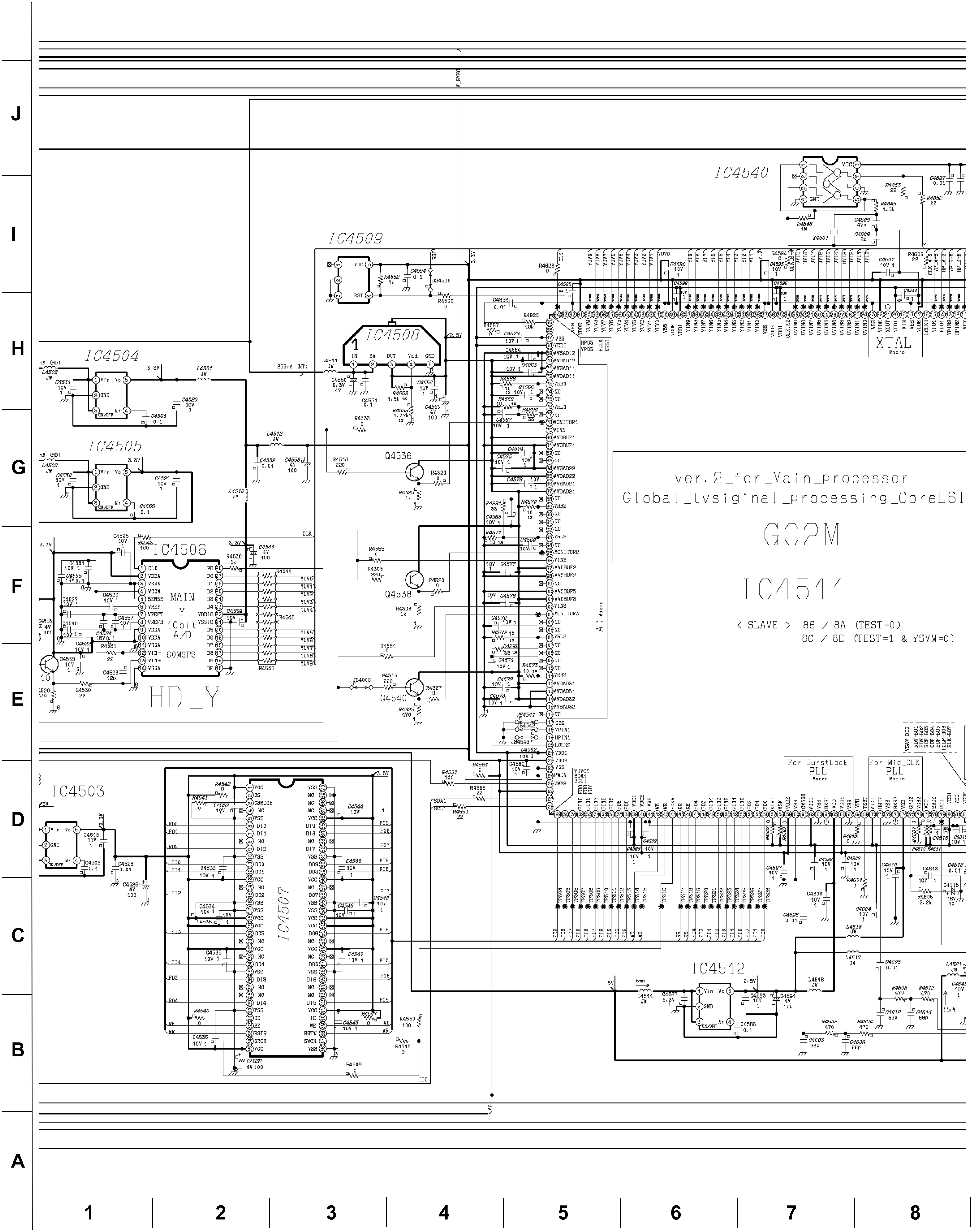
3
4
5
6
7
8
MAIN_Y
MAIN_PB
MAIN_PR
SUB_Y
SUB_PB
SUB_PR
SYSCLK
Q4001
Q4002
R4025 470
R4032 1k
R4033 470
R4034 1k
L4005 10
C4034 16V 100
C4035 16V 0.1
IC4025
R4035
R4064 75
L4007 1.5
C4071 120p
OSD_B
OSD_G
OSD_R
R4065 75
R4066 75
L4008 1.5
L4009 1.5
R4030
C4072 120p
C4073 120p
C4070 1
C4069 1
C4062 1
C4061 1
C4060 0.1
C4059 0.01
C4058 1
C4057 1
B OSD
GND
DG_G
VCC
YS
G OSD
R OSD
DG_B
OUT B
OUT G
OUT R
DG_R
OSDB
OSDG
OSDR
OSDYM
V_MUTE
VIDEO_MUTE
YM
YS
12MHz OSD BEAT COUNTERMEASURE
Q4003
R4037 470
R4036 470
R4039 100
OSDYS
HBLK
PTV (FROM CONV)
R4050 0
Q4015
R4049 470
R1045 470
R4060 100
VMYS
JS4004
C4039 16V 0.1
C4040 16V 0.1
Q4502
R4502 220
C4507 10V 33
R4524 2.2k
Y
R4511 0
R4514 240
L4503 1.5
L4513 3.3
C4346 5p
R4349 680
C4345 5p
Q4508
R4523 10k
C4347 22p
C4514 100p
R4506 220
R4520 750
Q4505
JS4009 22
Q4509
R4517 10k
30MHz
14MHz
PB
Q4503
R4503 220
R4525 2.2k
R4512 0
R4515 220
L4504 5.6
C4505 22p
R4518 330
R4507 680
C4503 47p
C4509 120p
R4521 2.4k
C4512 16V 1
Q4506
PR
Q4504
R4504 220
R4526 2.2k
C4506 22p
R4513 0
R4516 220
L4505 5.6
R4519 330
R4508 680
C4504 47p
C4510 120p
R4522 2.4k
C4511 16V 1
Q4507
L4501
C4501 0.01
C4502 10V 33
IC4504
32mA (HD)
L4508
C4531 10V 1
Vin
Vo
GND
ON/OFF
Nr
C4591 0.1
C4520 10V 1
3.3V
IC4505
87mA (HD)
L4509
C4530 10V 1
C4565 0.1
C4521 10V 1
IC450
C4525 10V 1
R4543 100
C4581 10V 1
C4555 16V 0.1
L4506
C4516 0.01
C4527 10V 1
C4526 10V 1
C4518 4V 100
C4540
C4557 10V
C4524 16V 0.1
C4522 10V 1
R4531 22
C4513 25V 10
R4528 150
Q4510
C4559 10V 1
R4529 330
R4530 22
C4523 12p
CLK
VDDA
VSSA
VCOM
SENSE
VREF
VREFT
VREFB
VIN-
VIN+
MAIN
Y
10bit
A/D
60MSPS
HD_
Q4541
R4527 4.7k
R4509 47k
R4510 47k
SOS2
KEY_SCAN1
KEY_SCAN2
AFC1
R4023 1k
R4031 10k
R4040 10k
R4054 1k
R4092 1k
R4089 1k
AFC2
SOS3
R4086 1k
R4085 1k
D4000
SOS
HHS_DET
R4084 1k
R4063 1k
DF_CUT
C4024 16V 100
R4075 1k
R4041 10k
R4074 1k
R4042 10k
AC_SW
R4061 1k
AUDIO_MUTE
R4072 1k
R4070 1k
HD_SD_SW
5V (Vpp)
STB_3.3V
R4013 33k
R4014 22k
C4017 50V 1
C4066 6.3V 6.8
C4018 16V 0.1
D4001
R4022 1k
SOS_LED
VMYS
5M_FIFO_MEMORY
L4507
IC4503
34mA (HD)
C4519 10V 1
C4515 10V 1
C4508 0.1
C4528 0.01
C4529 4V 100
CATEGORY OF GND
NONE = MAIN GND
1 = GC2M_AD
2 = GC2S_AD
3 = GC2M_FIFO
4 = GC2S_SDRAM
6 = HD_AD
Q4010
R4120 12k
R4121 10k
Q4011
C4053 10V 1
R4123 240
R4122 220
MAIN_Y
R4124 1k
C4052 560p
C4051 470p
Q4012
R4125 12k
R4126 10k
Q4013
C4056 10V 1
R4128 240
R4127 220
SUB_Y
R4129 1k
C4055 560p
C4054 470p
IIC
FD0
FD1
FD2
FI0
FI1
FI2
FI3
FI4
FD3
FD4
RE
RR


J
I
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F
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D
C
B
A
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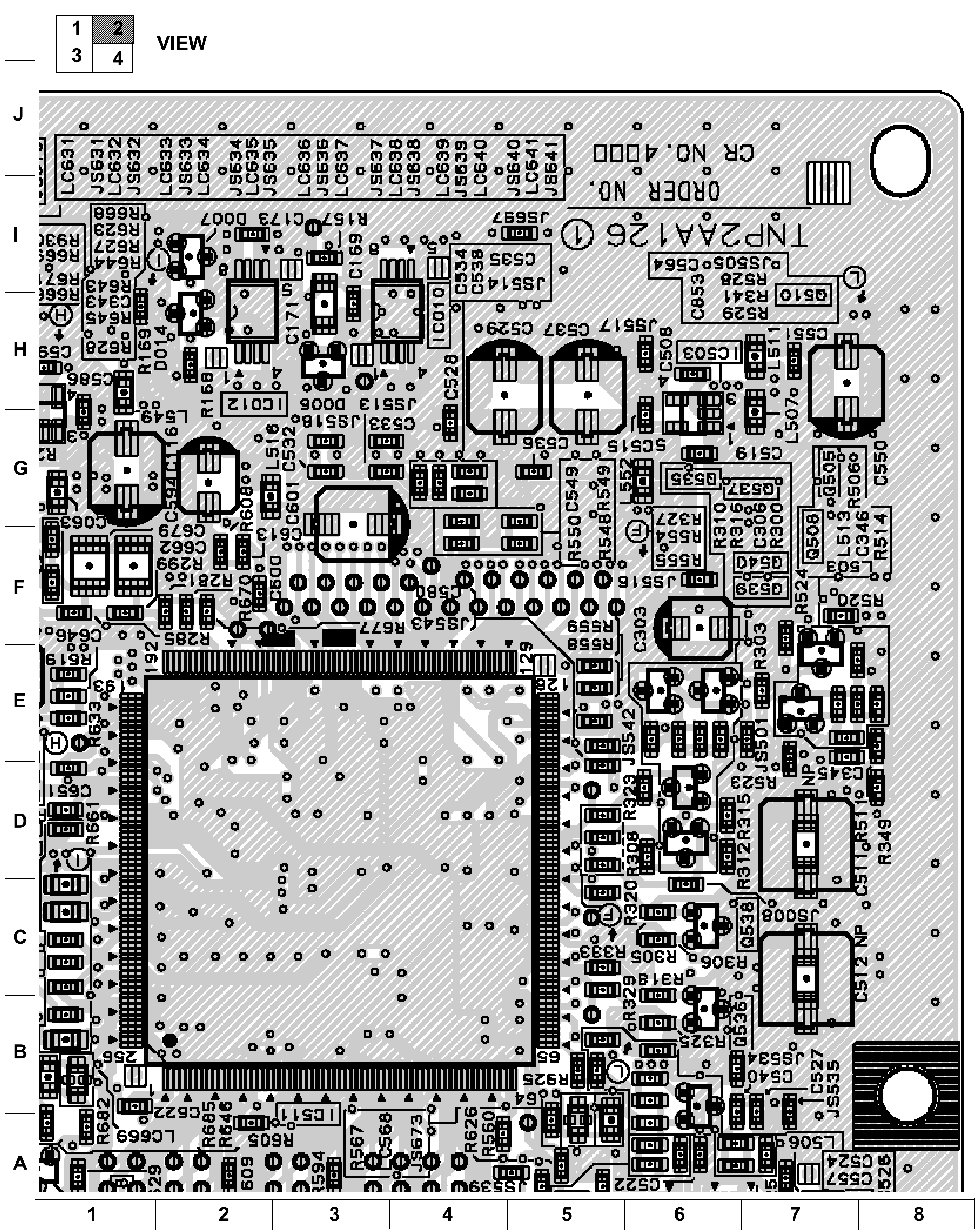
IC4540
IC4509
IC4508
IC4504
IC4505
IC4506
MAIN
Y
10bit
A/D
60MSPS
HD_Y
IC4503
IC4507
IC4512
IC4511
Q4536
Q4538
Q4540
XTAL
ver.2_for_Main_processor
Global_tvsiginal_processing_CoreLSI
GC2M
< SLAVE > 88 / 8A (TEST=0)
8C / 8E (TEST=1 & YSVM=0)
AD Macro
For BurstLock
PLL
For Mid_CLK
PLL
V_SYNC
3.3V
2.5V
5V
256mA (NT)
CLK
IIC
VP

DG-BOARD 3/6 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


1
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VIEW
J
I
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G
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C
B
A
1
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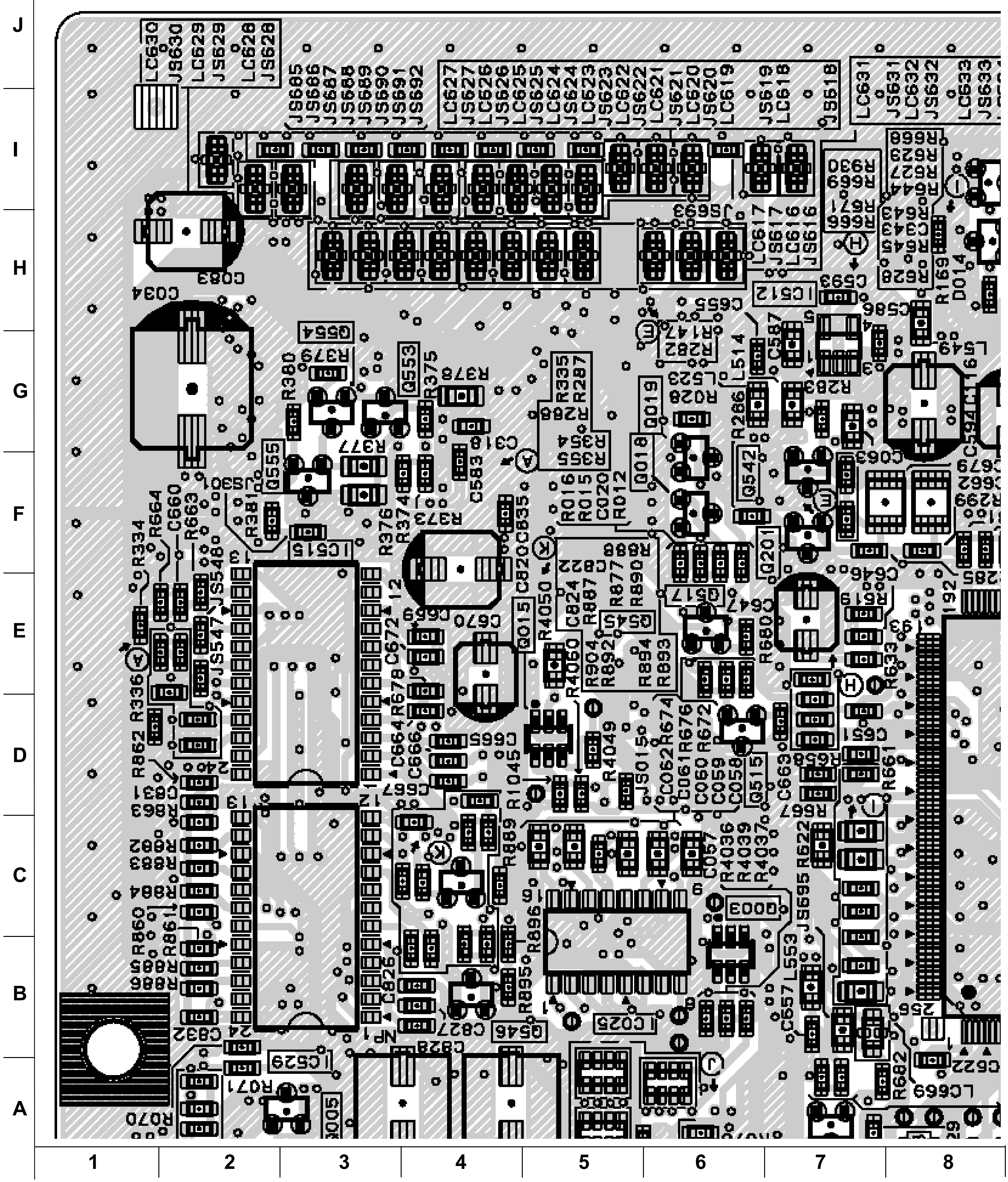
8
TNP2AA126
ORDER NO.
CR NO.4000
IC012
IC010
IC503
IC511
Q510
Q505
Q506
Q508
Q535
Q537
Q538
Q539
Q540
Q536
D007
D006
D014
C173
R157
C169
C171
C534
C538
C535
JS514
JS697
JS505
C564
R528
R341
R529
C853
C529
C537
JS517
C508
L511
C551
C528
JS513
JS518
C533
C536
C515
C519
C550
L516
C532
C601
C594
C613
C600
R608
R670
R677
JS543
C580
R559
R558
C303
R303
R524
R520
JS516
R550
C549
R549
R548
L552
R327
R554
R555
R310
R316
C306
R300
L513
C346
R514
L503
C549
L549
C586
R168
R169
R628
R645
C343
R643
R644
R627
R623
R668
R930
R665
R671
R666
C679
C662
R299
R281
R285
C646
C063
R619
R633
C651
R661
JS542
JS501
R523
C345
R323
R308
R320
R315
R312
R511
R349
C511
C512
JS008
R333
R305
R306
R318
R329
R325
JS534
C540
C527
JS535
R925
L506
C524
C557
C526
C522
JS539
R626
R560
JS673
C568
R567
R594
R605
R685
R646
LC669
C622
R682
192
193
129
128
65
64
256
LC631
JS631
LC632
JS632
LC633
JS633
LC634
JS634
LC635
JS635
LC636
JS636
LC637
JS637
LC638
JS638
LC639
JS639
LC640
JS640
LC641
JS641

DG-BOARD BOTTOM-VIEW 2/4 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

1	2
3	4

VIEW



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R896
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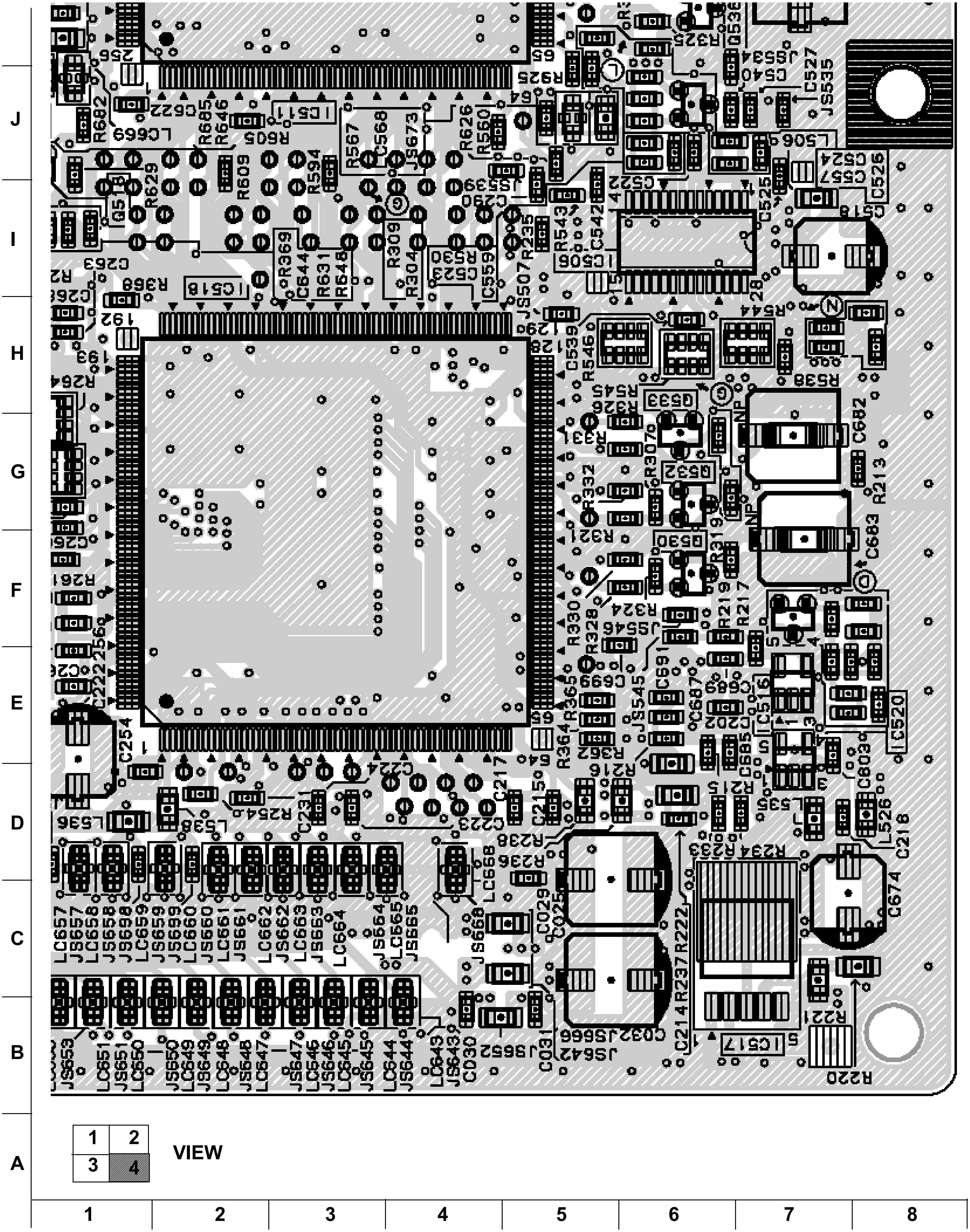
C826
C827
NP1
C828
Q546
IC025
C657
C622
LC669
C832
IC529
R071
R070
Q005
R682

DG-BOARD BOTTOM-VIEW 1/4 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G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R605
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R545
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C683
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C685
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R362
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LC664
JS664
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193
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64
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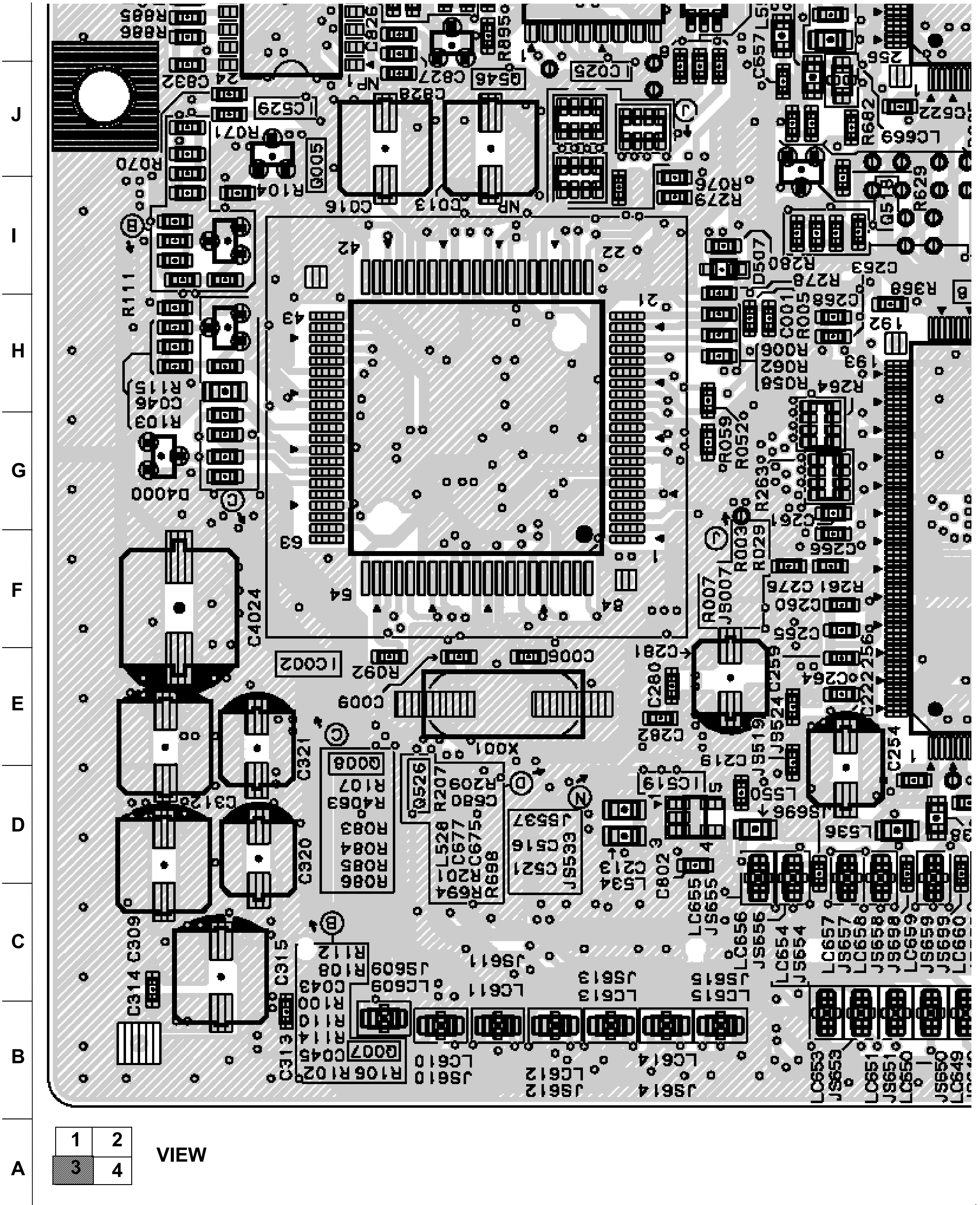
DG-BOARD BOTTOM-VIEW 4/4 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G



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VIEW
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R886
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C826
NP1
C827
Q546
R895
IC025
C657
R256
C622
LC669
R682
R629
Q517
C828
IC529
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R070
Q005
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R278
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C268
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R005
R006
R062
R058
R264
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R059
R052
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R003
R029
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C266
R007
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C281
C259
C264
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C254
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JS519
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C009
X001
C321
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R4063
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R086
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JS533
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L550
JS696
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C315
C313
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R108
C043
R100
R110
R114
C045
R102
R106
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JS611
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JS615
LC615
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JS610
LC612
JS612
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JS614
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JS653
LC651
JS651
LC650
JS650
LC649
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63
64
84
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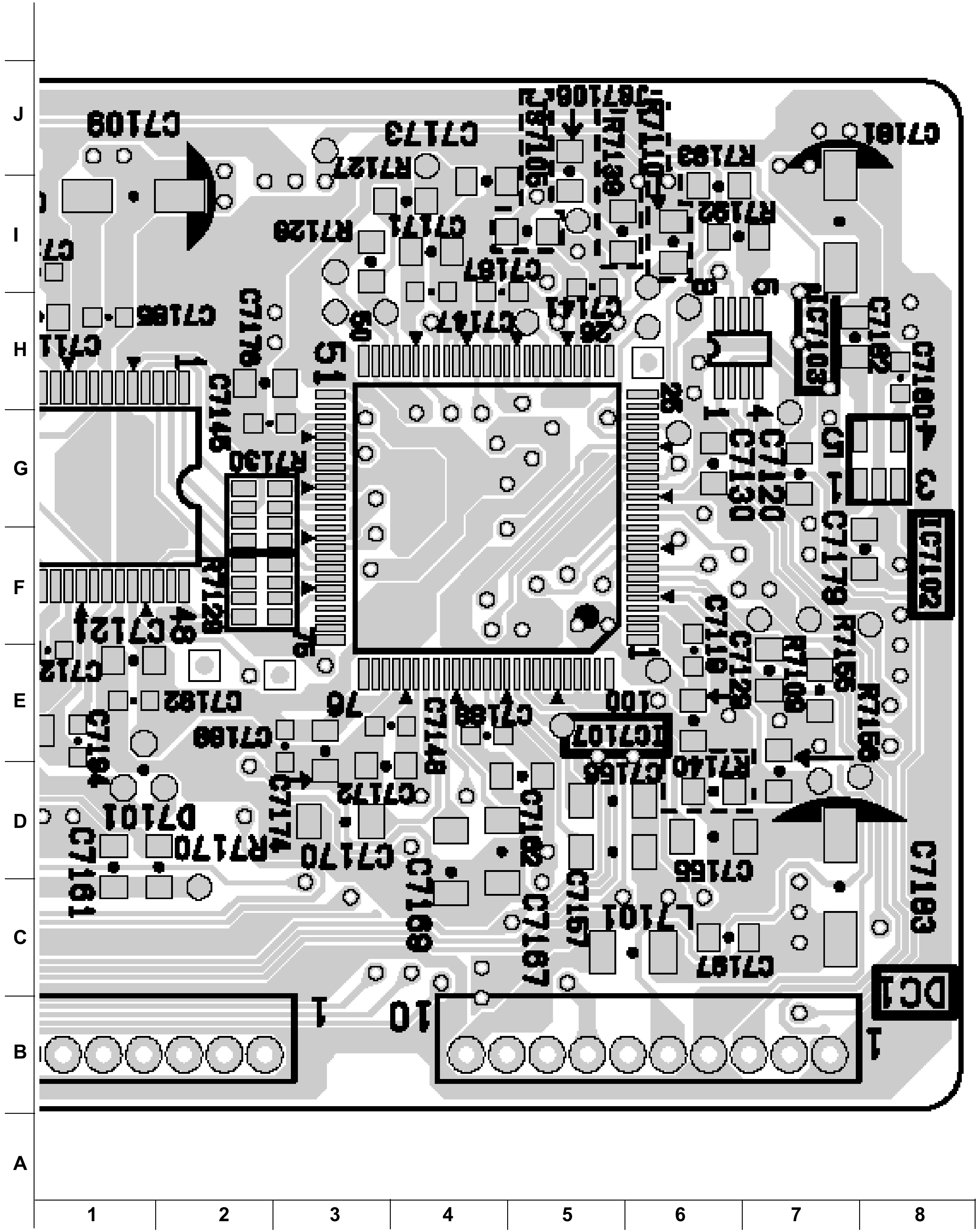
DG-BOARD BOTTOM-VIEW 3/4 TNP2AA126 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G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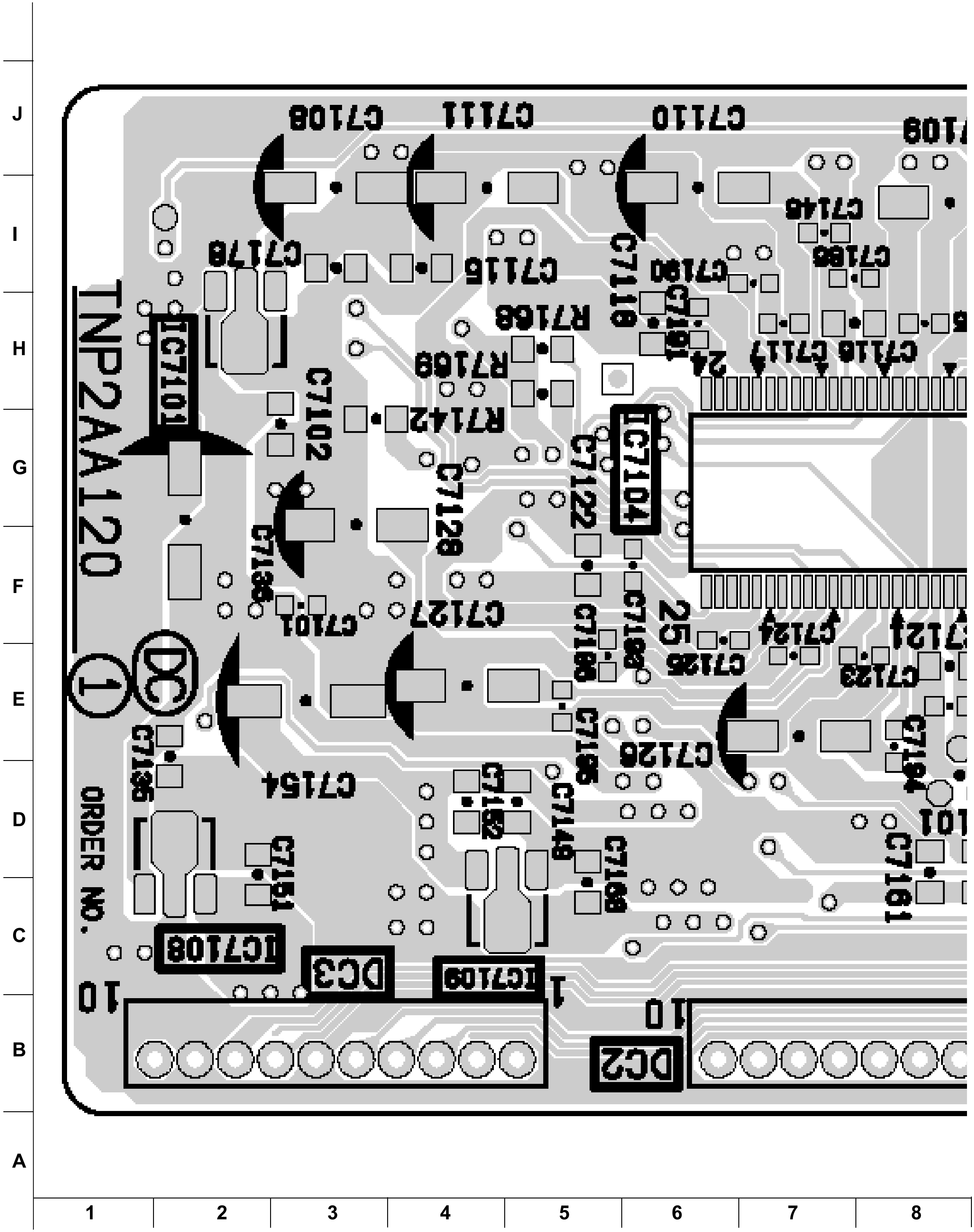
C7181
R7127
R7183
R7129
C7171
R7182
C7187
C7141
C7147
C7185
C7176
C7145
R7130
IC7103
C7182
C7160
C7120
C7130
IC7102
C7179
R7128
C7121
C7119
C7129
R7165
R7169
R7166
C7192
C7184
C7189
C7148
C7188
IC7107
C7156
R7140
C7174
C7172
D7101
R7170
C7170
C7162
C7161
C7169
C7167
C7157
C7155
L7101
C7197
C7193
DC1
51
50
26
25
76
75
100
1
10

DC-BOARD TOP-VIEW 2/2 TNP2AA120 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G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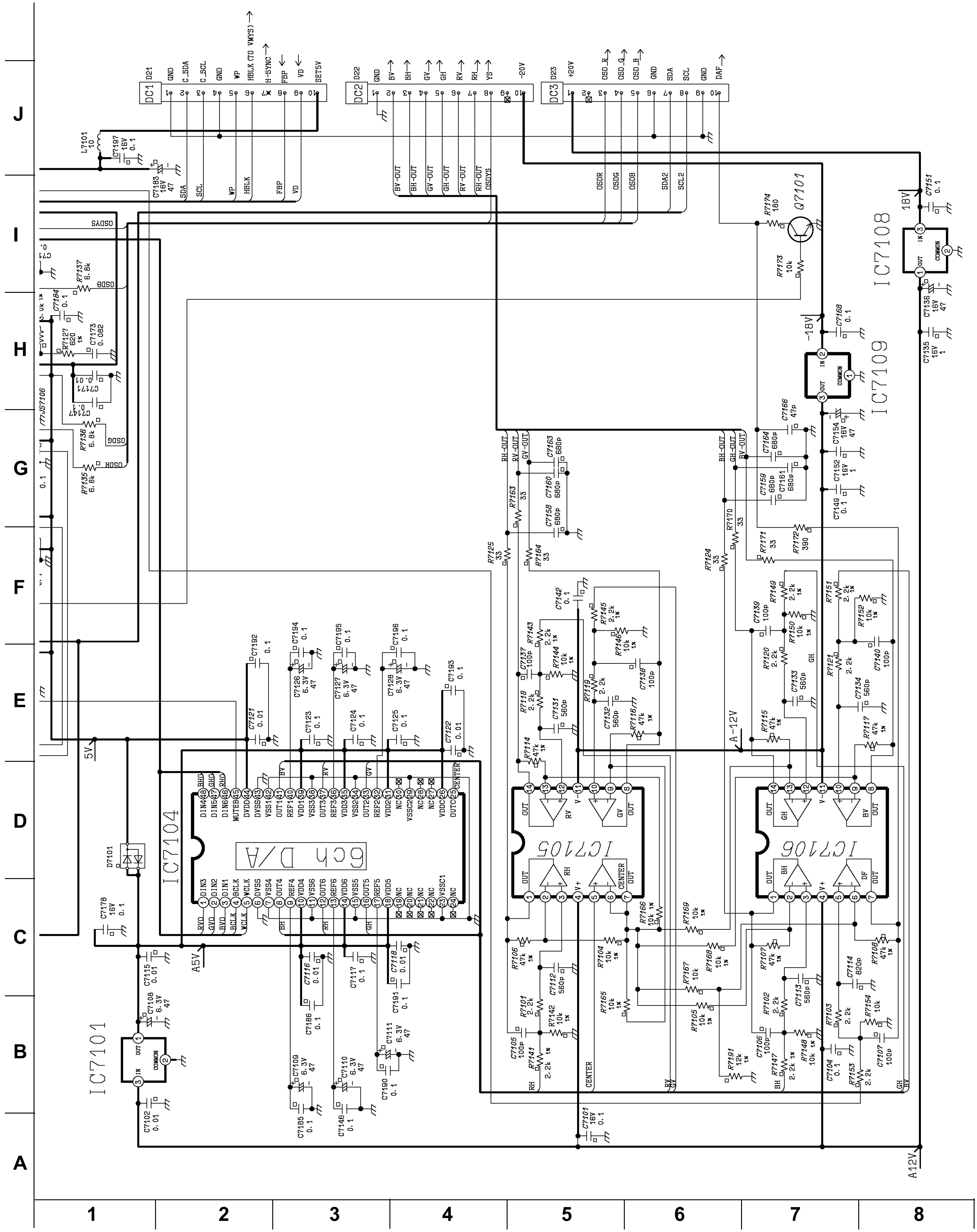
IC7101
IC7104
IC7108
IC7109
DC
DC2
DC3
1
ORDER NO.
C7108
C7111
C7110
C7178
C7115
C7116
C7145
C7186
C7190
C7191
R7168
R7169
R7142
C7102
C7128
C7122
C7136
C7101
C7127
C7180
C7183
C7125
C7124
C7121
C7123
C7185
C7126
C7194
C7154
C7151
C7152
C7149
C7169
C7161
24
25
10
1

DC-BOARD TOP-VIEW 1/2 TNP2AA120 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G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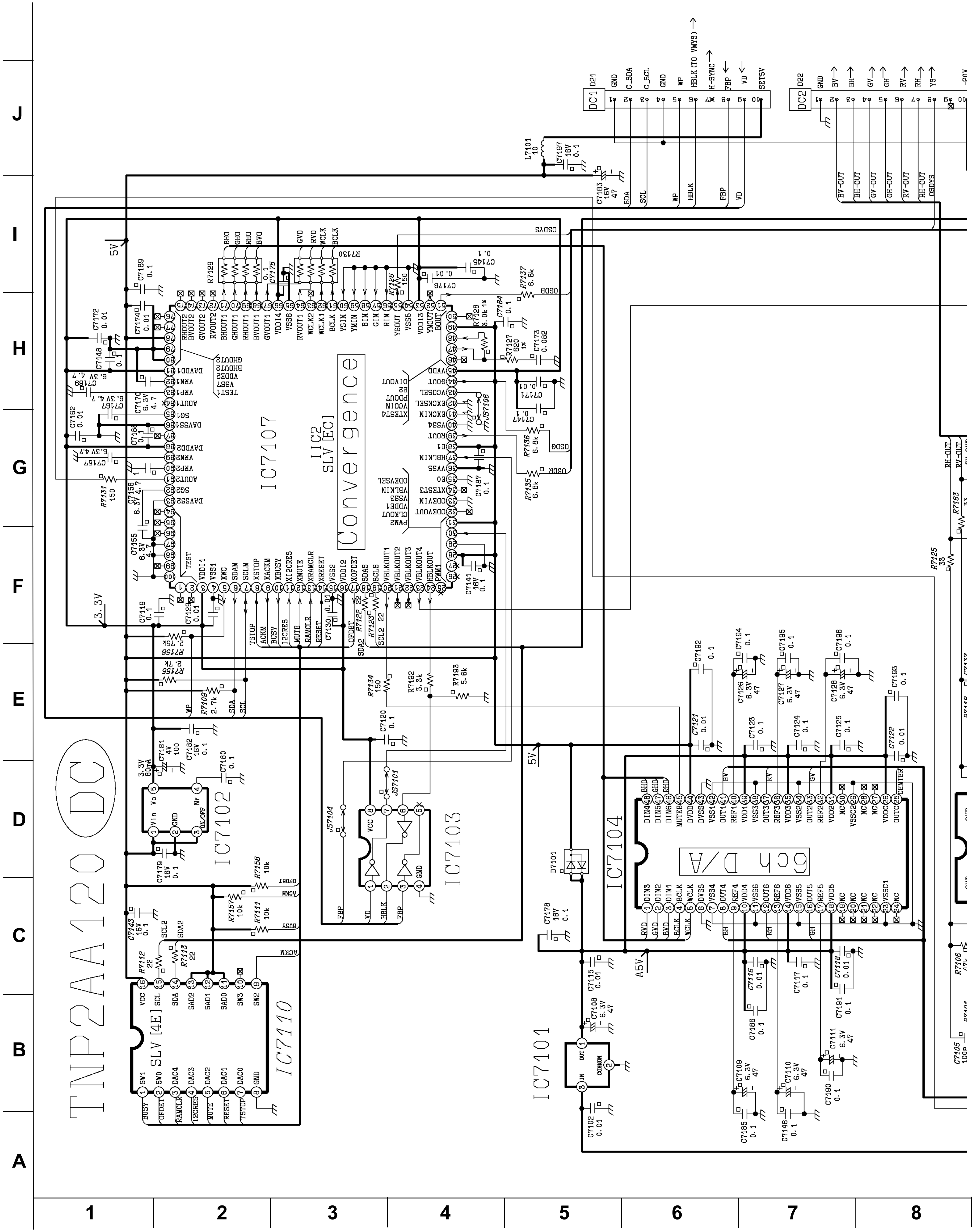
6
7
8
DC1 D21
GND
C_SDA
C_SCL
GND
WP
HBLK (TO VMYS)
H-SYNC
FBP
VD
SET5V
DC2 D22
GND
BV
BH
GV
GH
RV
RH
YS
-20V
DC3 D23
+20V
OSD_R
OSD_G
OSD_B
GND
SDA
SCL
GND
DAF
L7101 10
C7197 16V 0.1
C7183 16V 47
SDA
SCL
WP
HBLK
FBP
VD
BV-OUT
BH-OUT
GV-OUT
GH-OUT
RV-OUT
RH-OUT
OSDYS
OSDR
OSDG
OSDB
SDA2
SCL2
R7174 180
Q7101
R7173 10k
18V
C7151 0.1
IC7108
IN
COMMON
OUT
C7136 16V 47
C7135 16V 1
-18V
C7168 0.1
IC7109
C7166 47p
C7154 16V 47
C7152 16V 1
C7149 0.1
R7137 6.8k
C7184 0.1
R7127 620 1%
C7173 0.082
C7171 0.01
C7147 0.1
JS7106
R7136 6.8k
R7135 6.8k
OSDG
OSDR
OSDB
OSDYS
RH-OUT
RV-OUT
GV-OUT
C7163 680p
C7160 680p
C7158 680p
R7163 33
R7125 33
R7164 33
BH-OUT
GH-OUT
BV-OUT
C7164 680p
C7159 680p
C7161 680p
R7170 33
R7124 33
R7171 33
R7172 390
C7142 0.1
R7145 2.2k 1%
R7143 2.2k 1%
R7146 10k 1%
C7137 100p
R7144 10k 1%
C7138 100p
R7118 2.2k
C7131 560p
R7119 2.2k
C7132 560p
R7116 47k 1%
R7114 47k 1%
C7139 100p
R7149 2.2k 1%
R7150 10k 1%
R7151 2.2k 1%
R7152 10k 1%
R7120 2.2k
C7133 560p
GH
R7121 2.2k
C7134 560p
C7140 100p
R7115 47k 1%
R7117 47k 1%
A-12V
C7192 0.1
C7194 0.1
C7195 0.1
C7196 0.1
C7126 6.3V 47
C7127 6.3V 47
C7128 6.3V 47
C7193 0.1
C7121 0.01
C7123 0.1
C7124 0.1
C7125 0.1
C7122 0.01
5V
BHO
GHO
RHO
DIN4
DIN5
DIN6
MUTEB
DVDD
DVSS
VSS1
OUT1
REF1
VDD1
VSS3
OUT3
REF3
VDD3
VSS2
OUT2
REF2
VDD2
NC
VSSC2
VDDC
OUTC
CENTER
BV
RV
GV
IC7104
6ch D/A
DIN3
DIN2
DIN1
BCLK
WCLK
DVSS
VSS4
OUT4
REF4
VDD4
VSS6
OUT6
REF6
VDD6
VSS5
OUT5
REF5
VDD5
VSSC1
RVO
GVO
BVO
BCLK
WCLK
BH
RH
GH
D7101
C7178 16V 0.1
A5V
C7115 0.01
C7108 6.3V 47
C7116 0.01
C7117 0.1
C7118 0.01
C7186 0.1
C7191 0.1
C7111 6.3V 47
C7109 6.3V 47
C7110 6.3V 47
C7190 0.1
C7185 0.1
C7146 0.1
IC7101
C7102 0.01
OUT
V-
V+
IC7105
RV
GV
RH
CENTER
IC7106
GH
BV
BH
DF
R7166 10k 1%
R7169 10k 1%
R7106 47k 1%
R7104 10k 1%
R7168 10k 1%
R7107 47k 1%
R7108 47k 1%
C7112 560p
R7167 10k
C7114 820p
R7165 10k 1%
R7105 10k 1%
C7113 560p
R7101 2.2k
R7142 10k 1%
R7102 2.2k
R7103 2.2k
R7154 10k
C7105 100p
R7141 2.2k 1%
R7191 12k 1%
C7106 100p
R7147 2.2k 1%
R7148 10k 1%
C7104 0.1
R7153 2.2k 1%
C7107 100p
RH
CENTER
RV
GV
BH
GH
BV
C7101 16V 0.1
A12V


TNP2AA120 DC
IC7107
IIC2
SLV [EC]
Convergence
IC7102
IC7103
IC7110
SLV [4E]
IC7104
6ch D/A
IC7101
D7101
DC1
D21
DC2
D22
GND
C_SDA
C_SCL
WP
HBLK (TO VMYS)
H-SYNC
FBP
VD
SET5V
BV
BH
GV
GH
RV
RH
YS
BV-OUT
BH-OUT
GV-OUT
GH-OUT
RV-OUT
RH-OUT
OSDYS
L7101
10
C7197
16V
0.1
C7183
16V
47
5V
3.3V
A5V
R7129
R7130
R7126
150
R7137
6.8k
R7128
3.0k 1%
R7127
620
1%
R7136
6.8k
R7135
6.8k
R7131
150
R7156
2.75k
R7155
2.7k
R7109
2.7k
R7134
150
R7192
3.3k
R7193
5.6k
R7122
22
R7123
22
R7158
10k
R7157
10k
R7111
10k
R7112
22
R7113
22
R7125
33
R7163
R7106
OSDB
OSDG
OSDR
JS7106
JS7104
JS7101
C7145
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C7176
0.01
C7175
0.1
C7184
0.1
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0.082
C7171
0.01
C7147
0.1
C7187
0.1
C7141
16V
0.1
C7189
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C7174
0.01
C7172
0.01
C7148
0.1
C7169
6.3V 4.7
C7167
6.3V 4.7
C7170
6.3V
4.7
C7162
0.01
C7188
0.1
C7157
6.3V 4.7
C7156
6.3V 4.7
C7155
6.3V
4.7
C7119
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C7129
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C7130
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C7120
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C7181
4V
100
C7182
16V
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C7180
0.1
C7179
16V
0.1
C7143
16V
0.1
C7192
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C7194
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C7196
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C7126
6.3V
47
C7127
6.3V
47
C7128
6.3V
47
C7193
0.1
C7121
0.01
C7123
0.1
C7124
0.1
C7125
0.1
C7122
0.01
C7178
16V
0.1
C7115
0.01
C7108
6.3V
47
C7102
0.01
C7116
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C7117
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C7118
0.01
C7186
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C7191
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C7109
6.3V
47
C7110
6.3V
47
C7111
6.3V
47
C7185
0.1
C7146
0.1
C7190
0.1
C7105
100P
3.3V
80mA
Vin
Vo
GND
Nr
ON/OFF
VCC
SCL
SDA
SAD2
SAD1
SAD0
SW3
SW2
SW1
SW0
DAC4
DAC3
DAC2
DAC1
DAC0
BUSY
OFDET
RAMCLR
12CRES
MUTE
RESET
TSTOP
ACKM
SCL2
SDA2
XBUSY
XI2CRES
XMUTE
XRAMCLR
XRESET
VSS1
VDD11
XWC
SDAM
SCLM
XSTOP
XACKM
VSS2
VDD12
XOFDET
SDAS
SCLS
VBLKOUT1
VBLKOUT2
VBLKOUT3
VBLKOUT4
HBLKOUT
PWM1
PWM2
CLKOUT
ODEVOUT
VDDE1
VSS3
ODEVIN
XTEST3
VBLKIN
EO
ODEVSEL
VVSS
HBLKIN
E1
ROUT
VSS4
EXCKIN
XTEST4
EXCKSEL
VCOIN
VCOSEL
PDOUT
GOUT
E2
DIVOUT
VVDD
BOUT
YMOUT
YSOUT
VDD13
VSS5
RIN
GIN
BIN
YMIN
YSIN
BCLK
WCLK1
WCLK2
RVOUT1
VSS6
VDD14
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BVOUT1
RHOUT1
GHOUT1
BHOUT1
RVOUT2
GVOUT2
BVOUT2
RHOUT2
GHOUT2
BHOUT2
VDDE2
VSS7
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VRN1
VRP1
AOUT1
SG1
DAVSS1
DAVDD2
VRN2
VRP2
AOUT2
SG2
DAVSS2
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BHO
GHO
RHO
BVO
GVO
RVO
WCLK
DIN4
DIN5
DIN6
MUTEB
DVDD
DVSS
VSS1
OUT1
REF1
VDD1
VSS3
OUT3
REF3
VDD3
VSS2
OUT2
REF2
VDD2
VSSC
NC
VDDC
OUTC
CENTER
DIN3
DIN2
DIN1
VSS4
OUT4
REF4
VDD4
VSS6
OUT6
REF6
VDD6
VSS5
OUT5
REF5
VDD5
VSSC1
OUT
IN
COMMON
J
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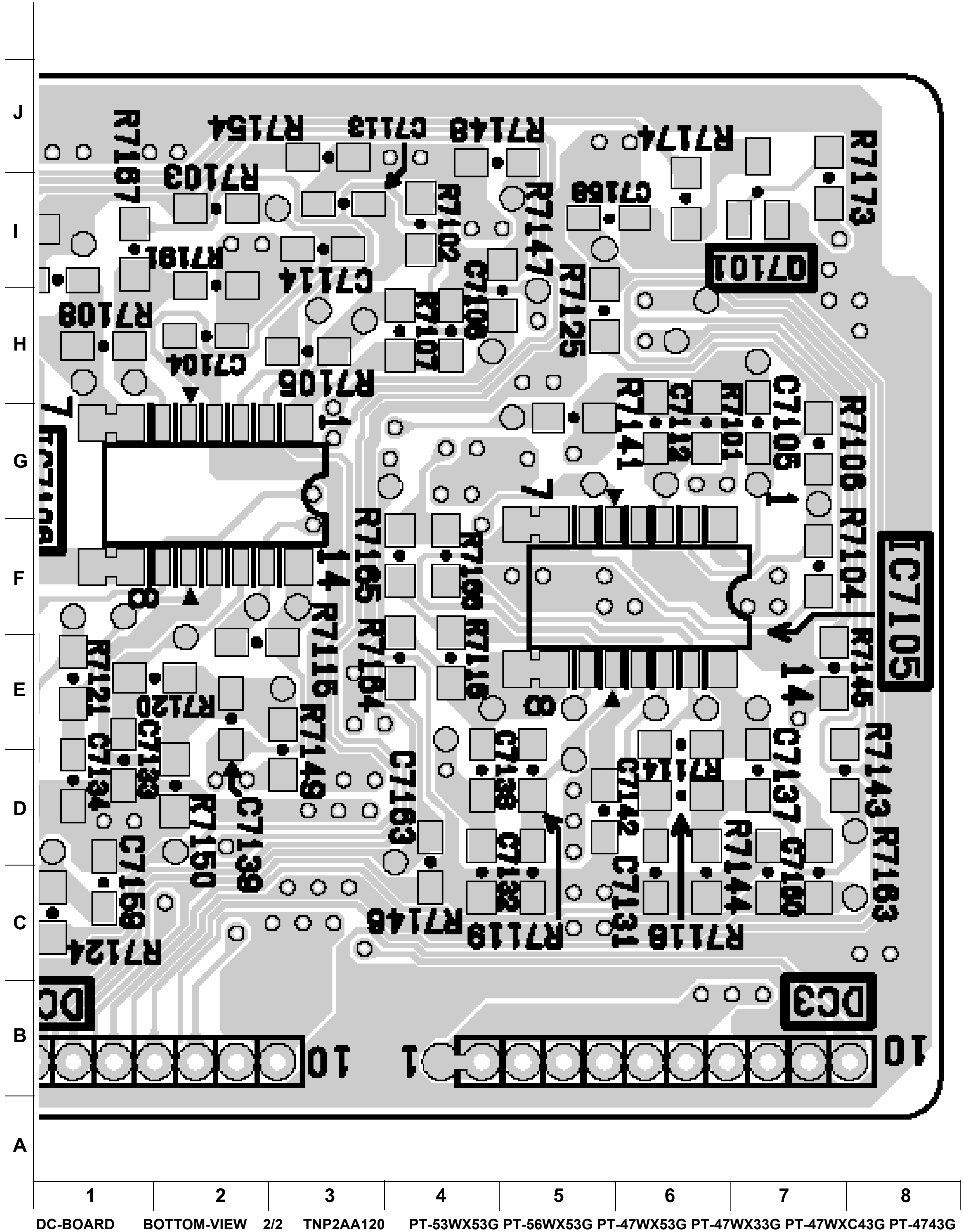
DC-BOARD 1/2 TNP2AA120 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G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R7154
C7113
R7148
R7174
R7173
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R7102
R7147
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C7160
R7124
R7146
R7119
R7118
DC3
DC
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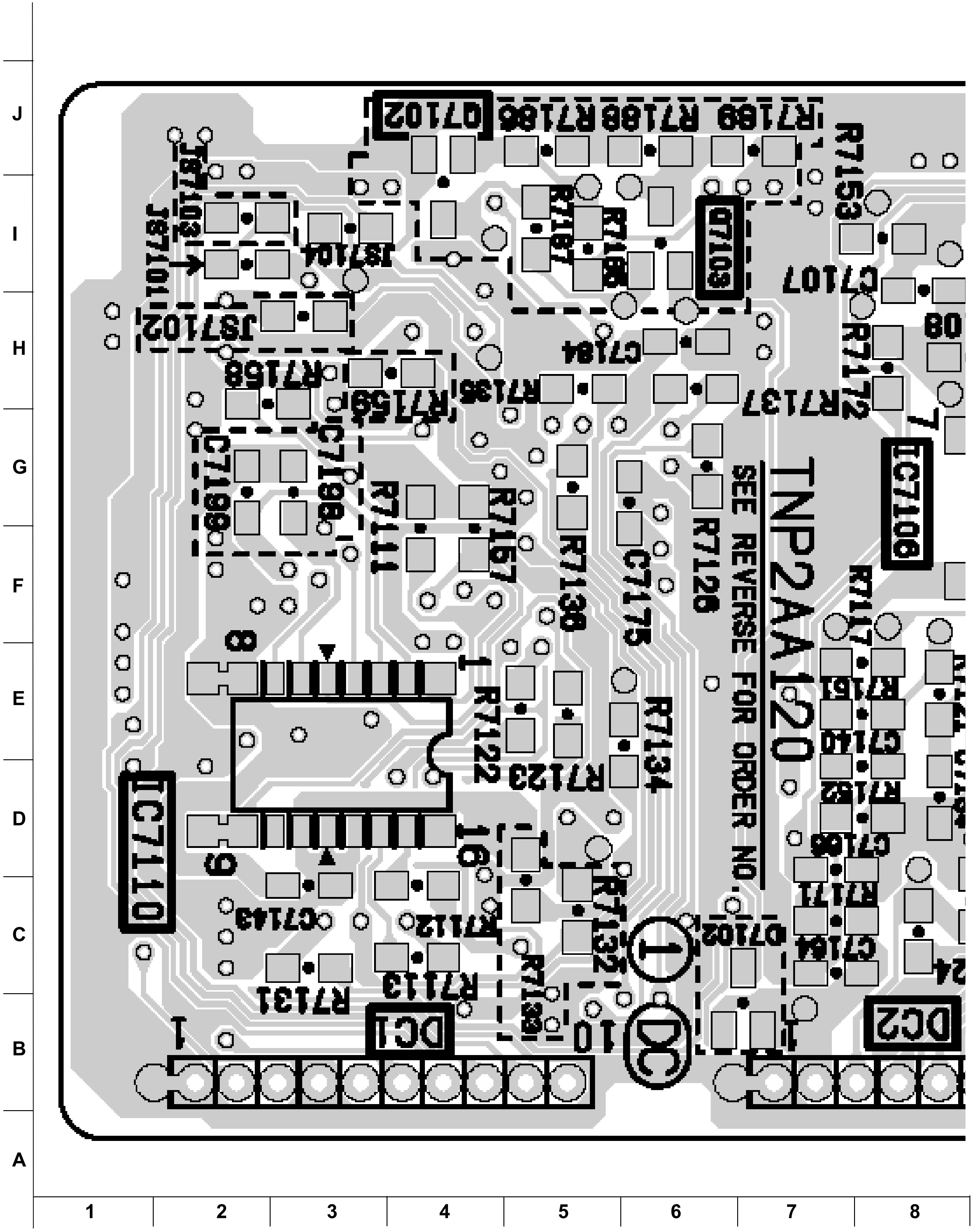
14

DC-BOARD BOTTOM-VIEW 2/2 TNP2AA120 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


J
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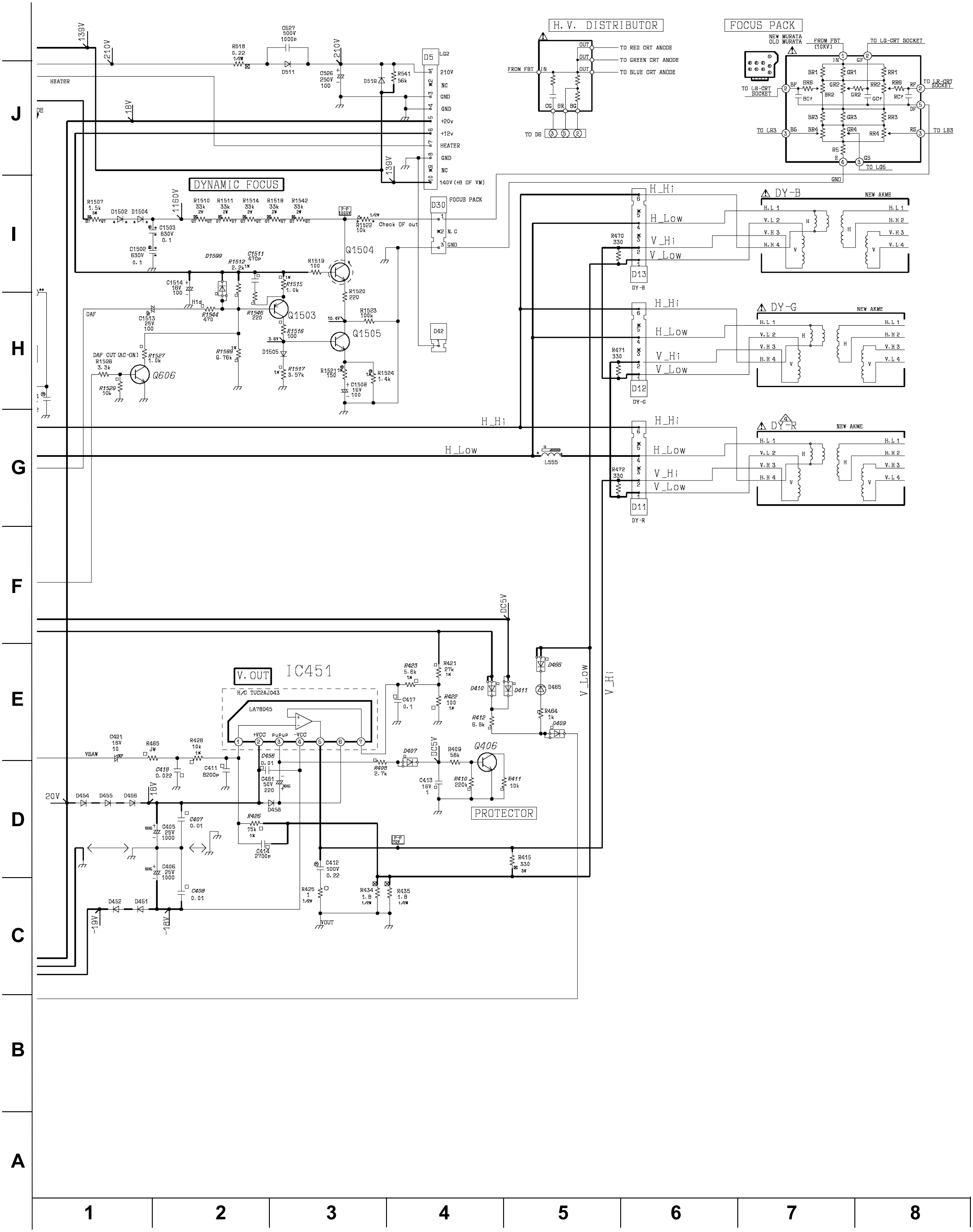
8
Q7102
R7186
R7188
R7189
R7153
JS7103
JS7101
JS7104
JS7102
R7187
R7185
Q7103
C7107
R7172
C7184
R7158
R7159
R7135
R7137
IC7199
C7198
R7111
R7157
R7130
C7175
R7126
SEE REVERSE FOR ORDER NO.
TNP2AA120
IC7106
R7117
R7151
C7140
R7152
C7168
R7171
C7164
R7122
R7123
R7134
IC7110
C7143
R7112
R7132
Q7102
R7113
R7131
R7133
DC1
DC2
DC
1
8
9
16
1
10

DC-BOARD BOTTOM-VIEW 1/2 TNP2AA120 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


H.V. DISTRIBUTOR
FROM FBT
TO RED CRT ANODE
TO GREEN CRT ANODE
TO BLUE CRT ANODE
TO D6
FOCUS PACK
NEW MURATA
OLD MURATA
FROM FBT (10KV)
TO LG-CRT SOCKET
TO LB-CRT SOCKET
TO LR-CRT SOCKET
TO LR3
TO LB3
TO LG5
GND
D5
LG2
210V
NC
GND
+20v
+12v
HEATER
140V (HB OF VM)
139V
210V
18V
HEATER
R518 0.22
C527 500V 1000p
D511
C526 250V 100
D519
R541 56k
DYNAMIC FOCUS
R1507 1.5k
D1502
D1504
1160V
R1510 33k
R1511 33k
R1514 33k
R1518 33k
R1542 33k
C1503 630V 0.1
C1502 630V 0.1
D30
FOCUS PACK
N.C
GND
R1522 10k
Check DF out
Q1504
R1519 100
D1599
R1512 2.2k
C1511 470p
C1514 16V 100
R1515 1.0k
R1520 220
Q1503
R1546 220
R1544 470
C1513 25V 100
DAF
R1523 100k
Q1505
R1516 100
D1505
R1517 3.57k
R1599 9.76k
R1527 1.0k
DAF CUT (AC-ON)
R1528 3.3k
Q606
R1529 10k
R1521 150
C1508 16V 100
R1524 1.4k
D42
H_Hi
H_Low
V_Hi
V_Low
R470 330
D13
DY-B
DY-B
NEW AKME
H.L 1
V.L 2
V.H 3
H.H 4
H.H 2
V.L 4
R471 330
D12
DY-G
DY-G
R472 330
D11
DY-R
DY-R
L555
DC5V
V.OUT
IC451
H/C TUC2AJ043
LA78045
+VCC
PuPuP
-VCC
C421 16V 10
VSAW
R465 JW
R428 10k
C418 0.022
C411 8200p
C456 0.01
C461 50V 220
R423 5.6k
R421 27k
C417 0.1
R422 100
D410
D411
D466
D465
R464 1k
D409
R412 6.8k
R408 2.7k
D407
DC5V
R409 56k
Q406
C413 16V 1
R410 220k
R411 10k
PROTECTOR
20V
D454
D455
D456
18V
D458
C405 25V 1000
C407 0.01
R426 15k
C414 2700p
C406 25V 1000
C408 0.01
C412 100V 0.22
R425 1
R434 1.8
R435 1.8
R415 330
VOUT
D452
D451
-19V
-18V
V_Low
V_Hi
J
I
H
G
F
E
D
C
B
A
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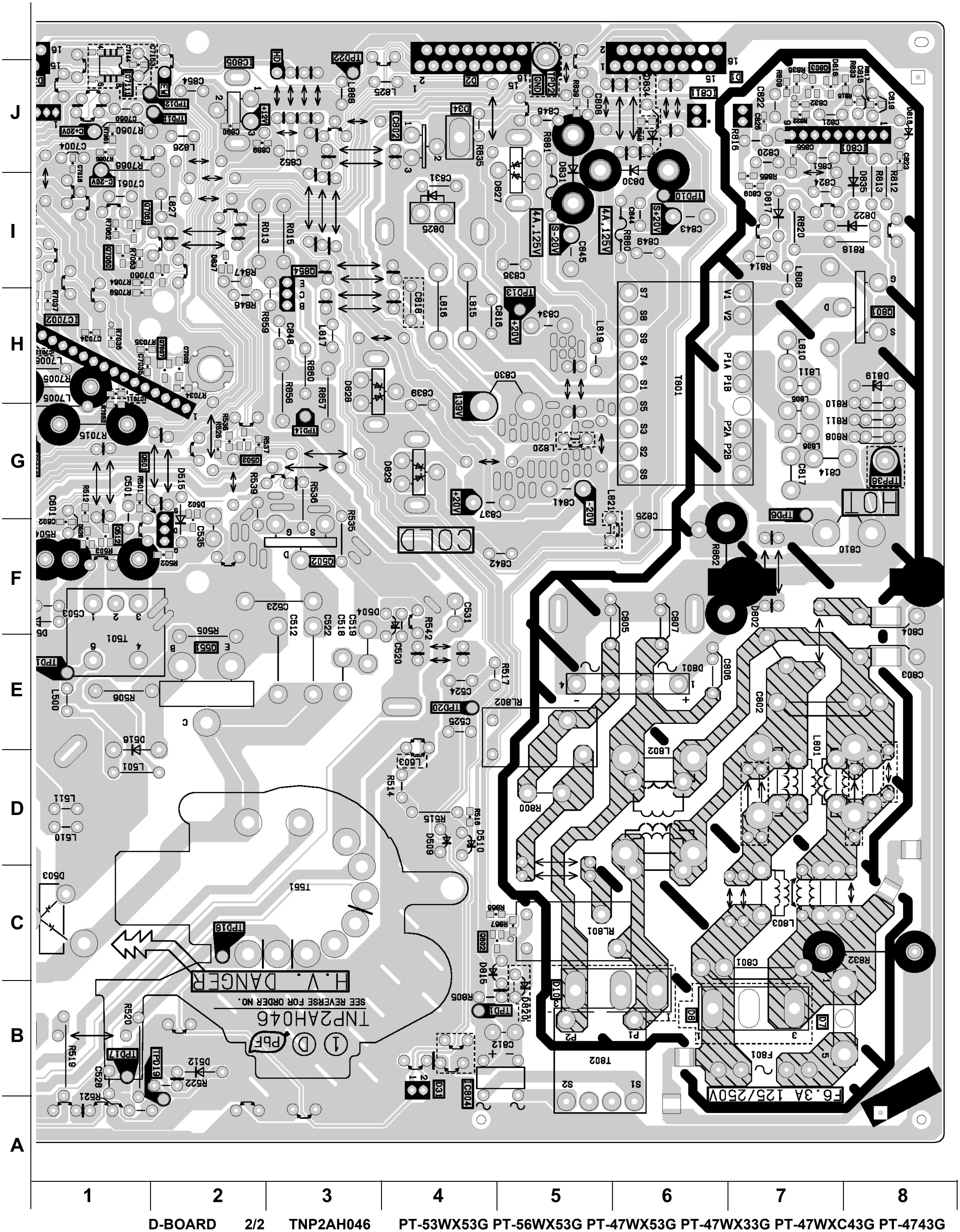
8

D-BOARD 5/5 TNP2AH046 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


J
I
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G
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D
C
B
A
1
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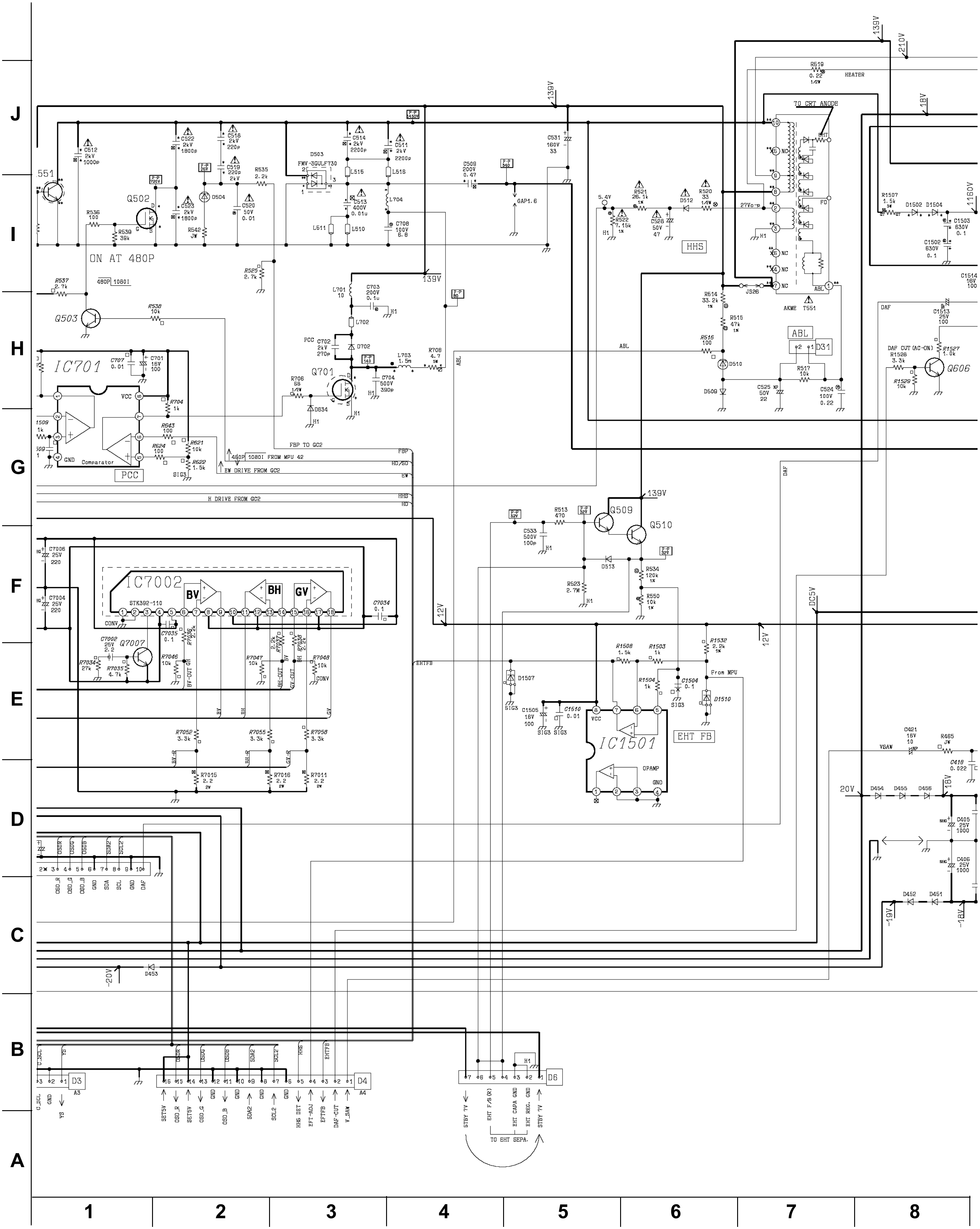
4
5
6
7
8
T801
T802
T501
T551
RL801
RL802
F801
F6.3A 125/250V
4A 125V
COLD
HOT
H.V. DANGER
SEE REVERSE FOR ORDER NO.
TNP2AH046
PbF
IC801
IC802
IC804
IC811
IC7002
D801
D802
D830
D831
L801
L802
L803
C801
C802
C803
C804
TPD10
TPD11
TPD12
TPD13
TPD14
TPD17
TPD18
TPD19
TPD20
TPD21
TPD22
TPP36
TPD6
S+20V
S-20V
+12V
+20V
-20V
139V
C-20V
C+20V
GND
HD
EW
S1
S2
P1
P2

D-BOARD 2/2 TNP2AH046 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G



J
I
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G
F
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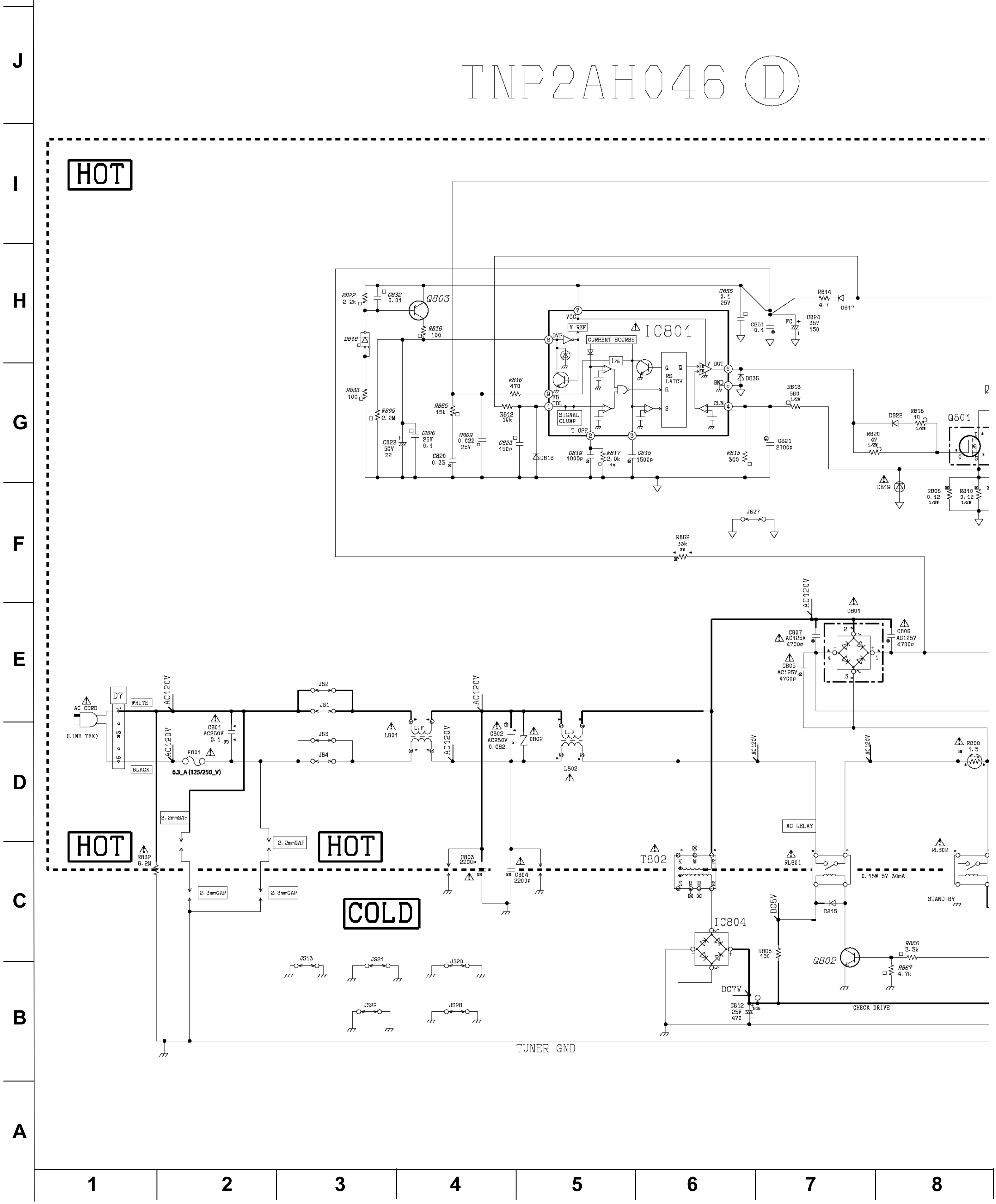
D
C
B
A
1
2
3
4
5
6
7
8
139V
210V
R519 0.22 1/2W
HEATER
TO CRT ANODE
18V
C512 2kV 1000p
C522 2kV 1800p
C518 2kV 220p
C519 220p 2kV
C523 2kV 1800p
C514 2kV 2200p
C511 2kV 2200p
C513 400V 0.01u
D503 FMV-3GULF730
L515
L516
L704
L511
L510
C708 100V 6.8
C509 200V 0.47
C531 160V 33
GAP1.6
Q502
Q503
D504
R542 JW
C520 50V 0.01
R535 2.2k
R536 100
R539 39k
R537 2.7k
R538 10k
R525 2.7k
ON AT 480P
480P 1080I
139V
L701 10
C703 200V 0.1u
L702
PCC
C702 2kV 270p
D702
L703 1.5m
R708 4.7 5W
C704 500V 390p
Q701
R706 56 1/2W
D634
ABL
IC701
C707 0.01
C701 16V 100
R704 1k
R643 100
R624 100
R621 10k
R622 1.5k
SIG3
Comparator
PCC
GND
VCC
FBP TO GC2
480P 1080I FROM MPU 42
EW DRIVE FROM GC2
H DRIVE FROM GC2
FBP
HD/SD
EW
HHS
HD
5.4V
R522 7.15k 1%
R521 26.1k 1%
C526 50V 47
D512
R520 33 1/2W
27Vo-p
HHS
R514 33.2k 1%
R515 47k 1%
R516 100
J526
D510
D509
ABL
D31
R517 10k
C525 NP 50V 22
C524 100V 0.22
AKME T551
NC
FO
EHT
R1507 1.5k 3W
D1502
D1504
C1503 630V 0.1
C1502 630V 0.1
1160V
C1514 16V 100
DAF
C1513 25V 100
DAF CUT (AC-ON)
R1526 3.3k
R1527 1.0k
R1529 10k
Q606
Q509
Q510
139V
R513 470
C533 500V 100p
D513
R523 2.7M
R534 120k 1%
R550 10k 1%
12V
DC5V
IC7002
STK392-110
BV
BH
GV
C7006 25V 220
C7004 25V 220
C7034 0.1
CONV
Q7007
C7002 25V 2.2
R7034 27k
R7035 4.7k
C7035 0.1
R7046 10k
R7047 10k
R7048 10k
BV-OUT
BH-OUT
GV-OUT
CONV
R7052 3.3k
R7055 3.3k
R7058 3.3k
R7015 2.2 2W
R7016 2.2 2W
R7011 2.2 2W
EHTFB
R1508 1.5k
R1503 1k
R1532 2.2k 1%
R1504 1k
C1504 0.1
From MPU
D1507
D1510
C1505 16V 100
C1510 0.01
IC1501
OPAMP
EHT FB
VCC
GND
C421 16V 10
R465 JW
VSAW
C418 0.022
20V
D454
D455
D456
C405 25V 1000
C406 25V 1000
D452
D451
-19V
-18V
-20V
D453
OSD_R
OSD_G
OSD_B
GND
SDA
SCL
GND
DAF
D3
A3
YS
D4
A4
SET5V
OSD_R
SET5V
OSD_G
GND
OSD_B
GND
SDA2
GND
SCL2
GND
HHS DET
EFT-ADJ
EFTFB
DAF-CUT
V_SAW
D6
H1
STBY 7V
EHT F/B(R)
EHT CAPA GND
EHT REG. GND
STBY 7V
TO EHT SEPA.

D-BOARD 4/5 TNP2AH046 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


TNP2AH046 D
HOT
HOT
HOT
COLD
IC801
V REF
CURRENT SOURSE
RS LATCH
SIGNAL CLUMP
VCC
OVP
FB TDL
T OFF
V OUT
GND
CLM
Q803
Q801
Q802
R822 2.2k
C832 0.01
R836 100
D818
R833 100
R809 2.2M
C822 50V 22
C826 25V 0.1
R865 15k
C820 0.33
C809 0.022 25V
R816 470
R812 10k
C823 150p
D816
C819 1000p
R817 2.0k 1%
C815 1500p
C855 0.1 25V
C851 0.1
R814 4.7
D817
C824 35V 150
D835
R813 560 1/2W
C821 2700p
R815 300
D822
R818 10 1/2W
R820 47 1/2W
D819
R808 0.12 1/2W
R810 0.12 1/2W
J527
R862 33k 3W
AC120V
D801
C807 AC125V 4700p
C806 AC125V 4700p
C805 AC125V 4700p
AC CORD
(LINE TEK)
D7
WHITE
BLACK
F801
6.3_A (125/250_V)
C801 AC250V 0.1
JS2
JS1
JS3
JS4
L801
L.F
C802 AC250V 0.082
D802
L802
R800 5W 1.5
2.2mmGAP
2.2mmGAP
2.3mmGAP
2.3mmGAP
R832 8.2M
C803 2200p
C804 2200p
T802
AC RELAY
RL801
RL802
0.15W 5V 30mA
STAND-BY
D815
DC5V
IC804
R805 100
R866 3.3k
R867 4.7k
DC7V
C812 25V 470
CHECK DRIVE
JS13
JS21
JS20
JS22
JS28
TUNER GND
J
I
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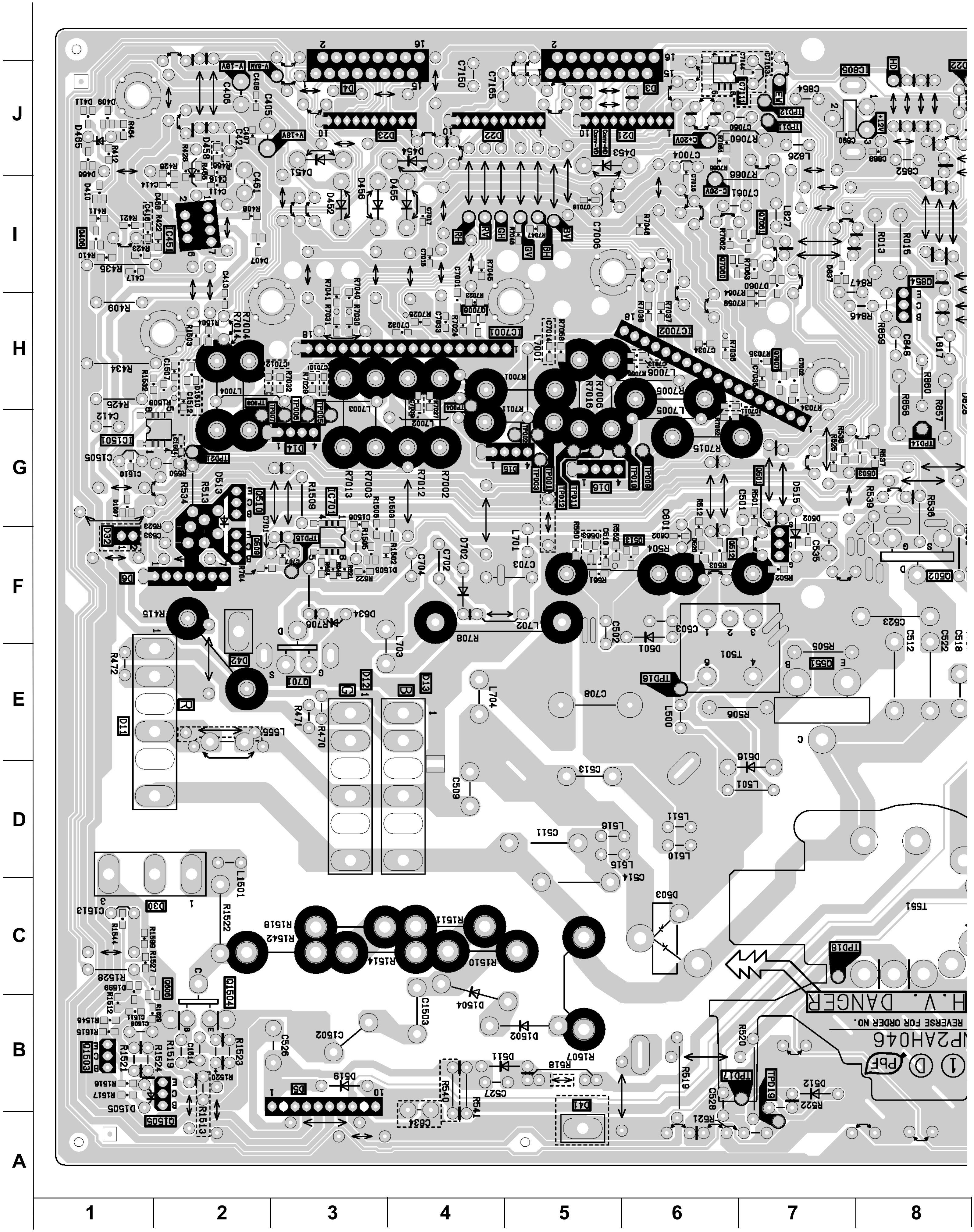
J
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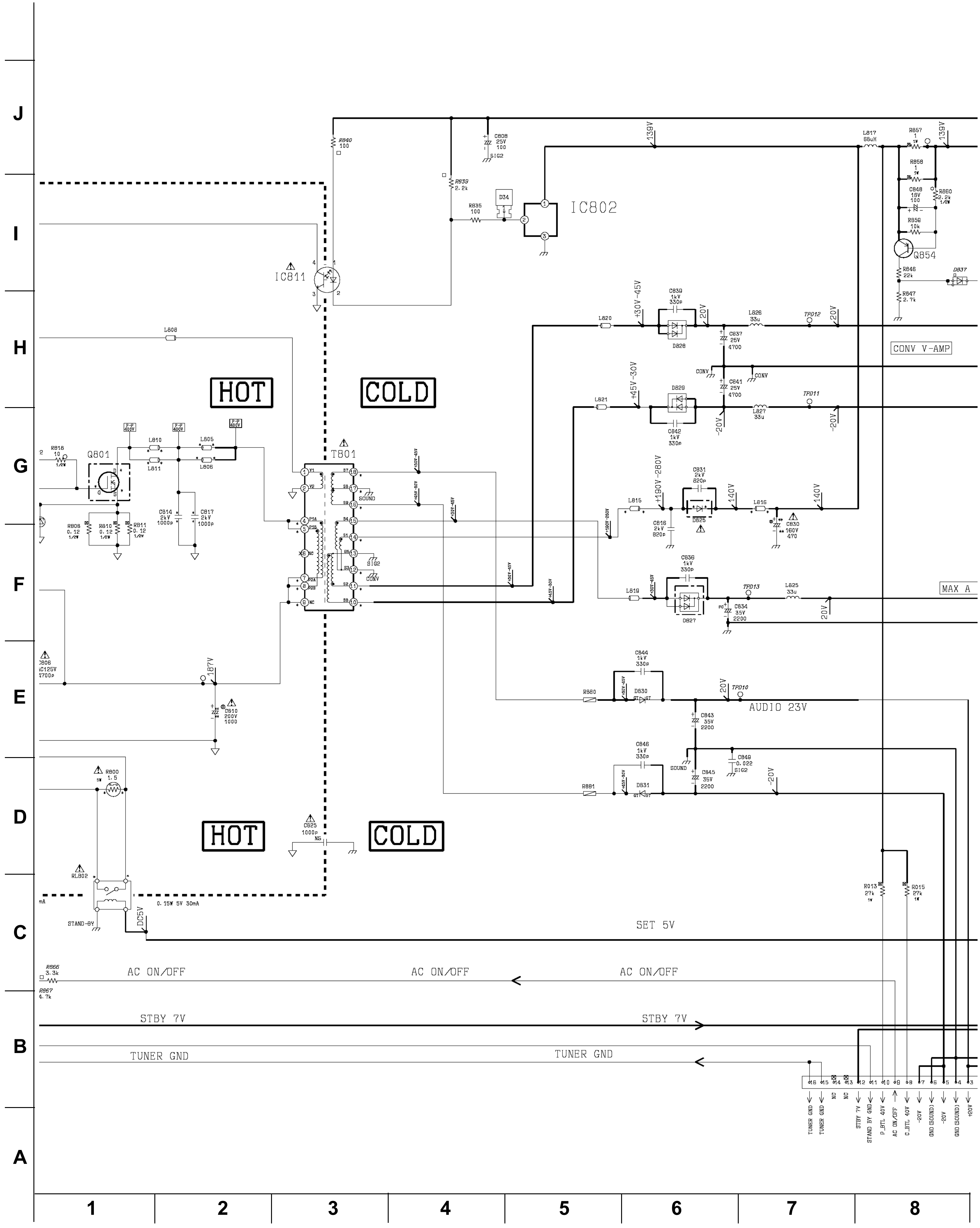
8
H.V. DANGER
REVERSE FOR ORDER NO.
TNP2AH046
T501
T551
IC7001
IC7002
IC1501
IC451
IC701
D11
D12
D13
D30
D41
D42
L500
L501
C708
R415
R7002
R7003
R7012
R7013
R1510
R1511
R1514
R1518
R1542
R1507
TPD16
TPD17
TPD18
TPD19

D-BOARD 1/2 TNP2AH046 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


J
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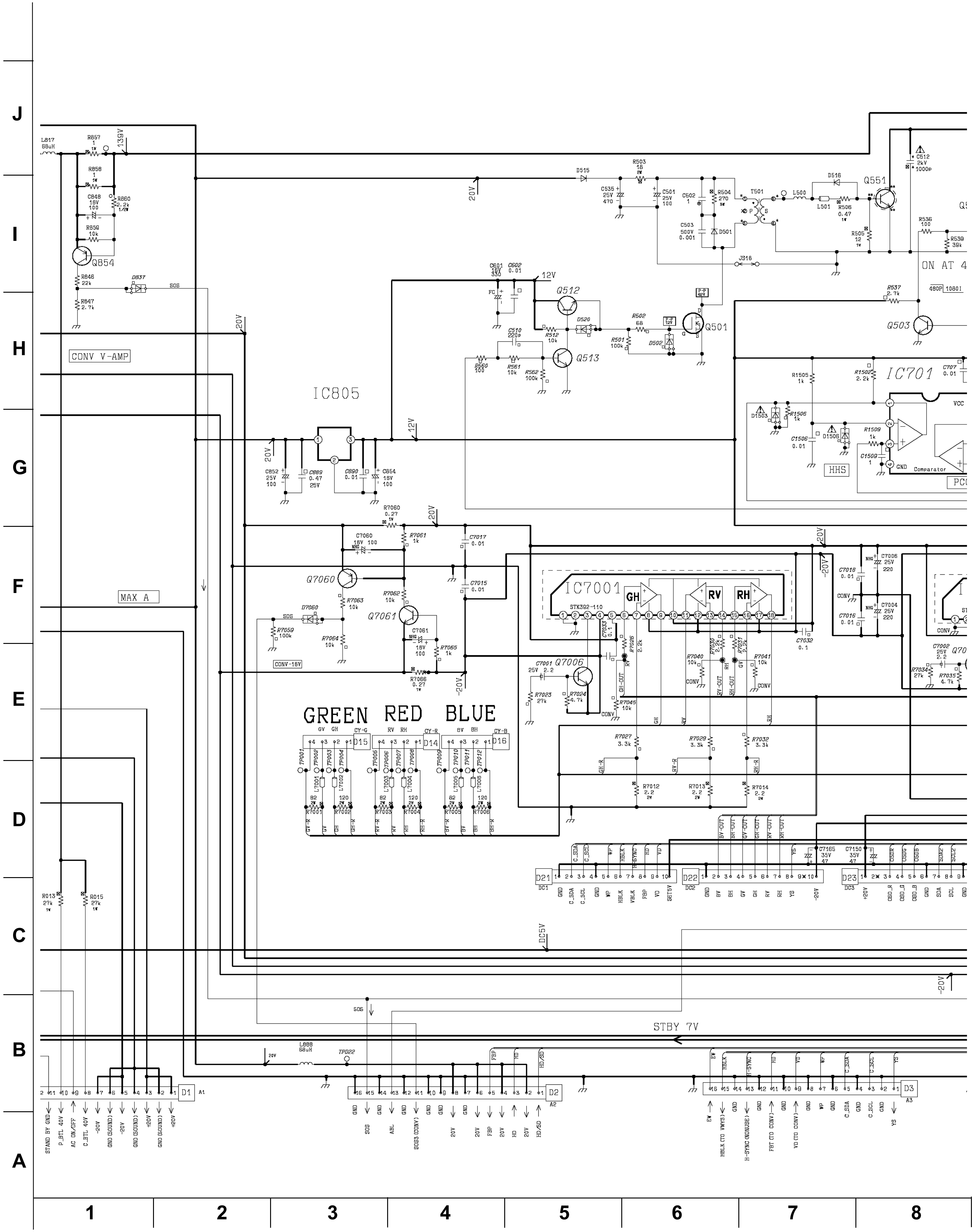
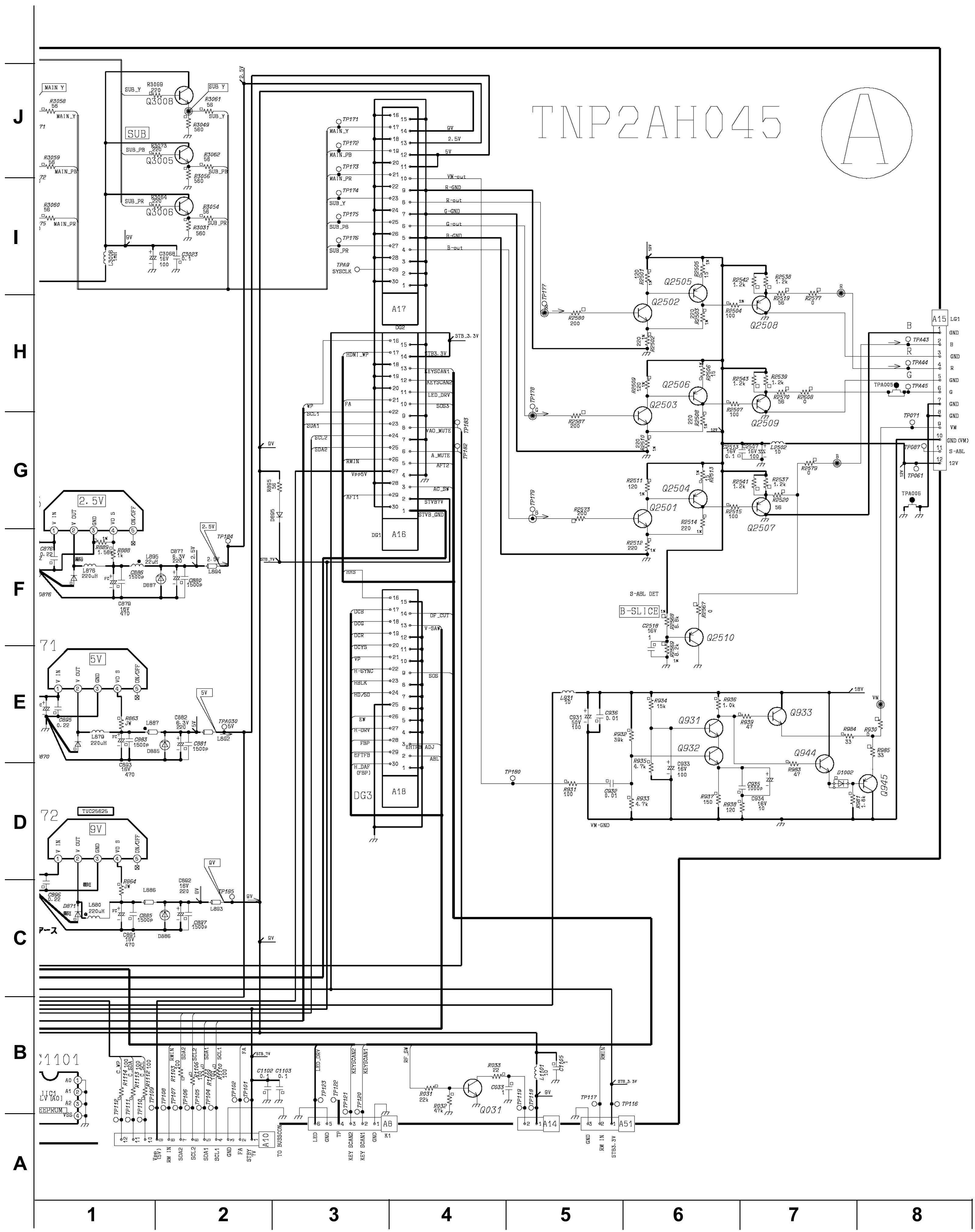
6
7
8
R840 100
C808 25V 100
SIG2
139V
L817 68uH
R857 1 1W
139V
R839 2.2k
R835 100
D34
IC802
R858 1 1W
C848 16V 100
R860 2.2k 1/2W
R859 10k
Q854
R846 22k
R847 2.7k
D837
IC811
+30V-45V
C839 1kV 330P
20V
L820
D828
C837 25V 4700
L826 33u
TPD12
20V
CONV V-AMP
CONV
CONV
+45V-30V
D829
C841 25V 4700
L821
C842 1kV 330P
-20V
L827 33u
TPD11
-20V
L808
HOT
COLD
T801
R818 10 1/2W
Q801
L810
L811
L805
L806
P-P 400V
C814 2kV 1000P
C817 2kV 1000P
R808 0.12 1/2W
R810 0.12 1/2W
R811 0.12 1/2W
+190V-280V
C831 2kV 820P
140V
L815
L816
140V
D825
C816 2kV 820P
C830 160V 470
SOUND
SIG2
CONV
C836 1kV 330P
L819
TPD13
L825 33u
MAX A
D827
C834 35V 2200
20V
C806 AC125V 4700P
187V
C810 200V 1000
C844 1kV 330P
R880
D830
20V
TPD10
AUDIO 23V
C843 35V 2200
C846 1kV 330P
C849 0.022
SIG2
SOUND
C845 35V 2200
R881
D831
-20V
R800 5W 1.5
HOT
C825 1000P
NS
COLD
RL802
STAND-BY
DC5V
0.15W 5V 30mA
R013 27k 1W
R015 27k 1W
SET 5V
R866 3.3k
R867 4.7k
AC ON/OFF
AC ON/OFF
AC ON/OFF
STBY 7V
STBY 7V
TUNER GND
TUNER GND
TUNER GND
TUNER GND
NC
NC
STBY 7V
STAND BY GND
P_BTL 40V
AC ON/OFF
C_BTL 40V
-20V
GND (SOUND)
-20V
GND (SOUND)
+20V


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
L817 68uH
R857 1 1W
139V
R858 1 1W
C848 16V 100
R860 2.2k 1/2W
R859 10k
Q854
R846 22k
R847 2.7k
D837
SOS
CONV V-AMP
20V
IC805
C852 25V 100
C889 0.47 25V
C890 0.01
C854 16V 100
12V
MAX A
D515
R503 18 2W
C535 25V 470
C501 25V 100
C502 1
R504 270 3W
C503 500V 0.001
D501
T501
L500
D516
L501
R506 0.47 1W
Q551
C512 2kV 1000p
R505 12 1W
R536 100
R539 39k
JS16
ON AT 4
R537 2.7k
480P 1080I
Q503
C601 16V 330
C602 0.01
Q512
C510 220p
R512 10k
D520
R502 68
Q501
R501 100k
D502
Q513
R560 100
R561 10k
R562 100k
IC701
R1505 1k
R1502 2.2k
C707 0.01
VCC
D1503
R1506 1k
C1506 0.01
D1506
R1509 1k
C1509 1
GND
Comparator
HHS
PC
R7060 0.27 1W
C7060 16V 100
R7061 1k
C7017 0.01
C7015 0.01
Q7060
R7063 10k
R7062 10k
Q7061
D7060
R7059 100k
R7064 10k
C7061 16V 100
R7065 1k
CONV-16V
R7066 0.27 1W
-20V
IC7001
STK392-110
GH
RV
RH
C7033 0.1
R7026 2.2k
C7032 0.1
C7018 0.01
C7006 25V 220
CONV
C7016 0.01
C7004 25V 220
C7001 25V 2.2
Q7006
R7023 27k
R7024 4.7k
R7045 10k
R7040 10k
R7030 2.2k
R7031 2.2k
R7041 10k
GH-OUT
RV-OUT
RH-OUT
C7002 25V 2.2
R7034 27k
R7035 4.7k
GREEN RED BLUE
CY-G
CY-R
CY-B
D15
D14
D16
TP001
TP002
TP003
TP004
TP005
TP006
TP007
TP008
TP009
TP010
TP011
TP012
L7001
L7002
L7003
L7004
L7005
L7006
R7001 82 2W
R7002 120 2W
R7003 82 2W
R7004 120 2W
R7005 82 2W
R7006 120 2W
R7027 3.3k
R7029 3.3k
R7032 3.3k
R7012 2.2 2W
R7013 2.2 2W
R7014 2.2 2W
GH-R
RV-R
RH-R
C7165 35V 47
C7150 35V 47
D21
DC1
GND
C_SDA
C_SCL
WP
HBLK
VBLK
H-SYNC
FBP
HD
VD
SET5V
D22
DC2
BV
BH
GV
GH
RV
RH
YS
-20V
D23
DC3
+20V
OSD_R
OSD_G
OSD_B
SDA
SCL
R013 27k 1W
R015 27k 1W
DC5V
STBY 7V
SOS
L888 68uH
TP022
D1
A1
STAND BY GND
P_BTL 40V
AC ON/OFF
C_BTL 40V
-20V
GND (SOUND)
+20V
D2
A2
ABL
SOS3 (CONV)
20V
HD/SD
D3
A3
EW
HBLK (TO VMYS)
H-SYNC (NONUSE)
FBT (TO CONV)
VD (TO CONV)


TNP2AH045
A
J
I
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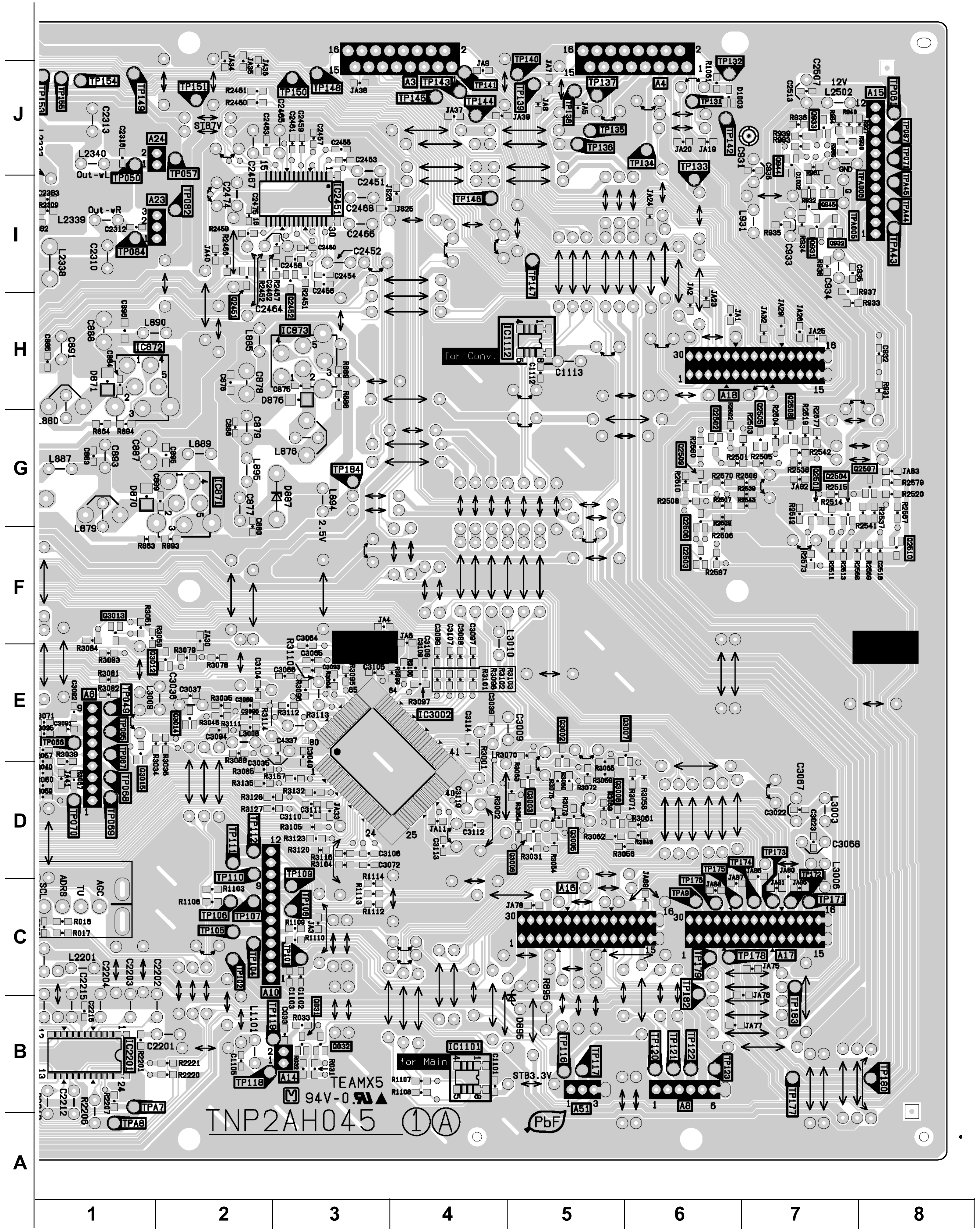
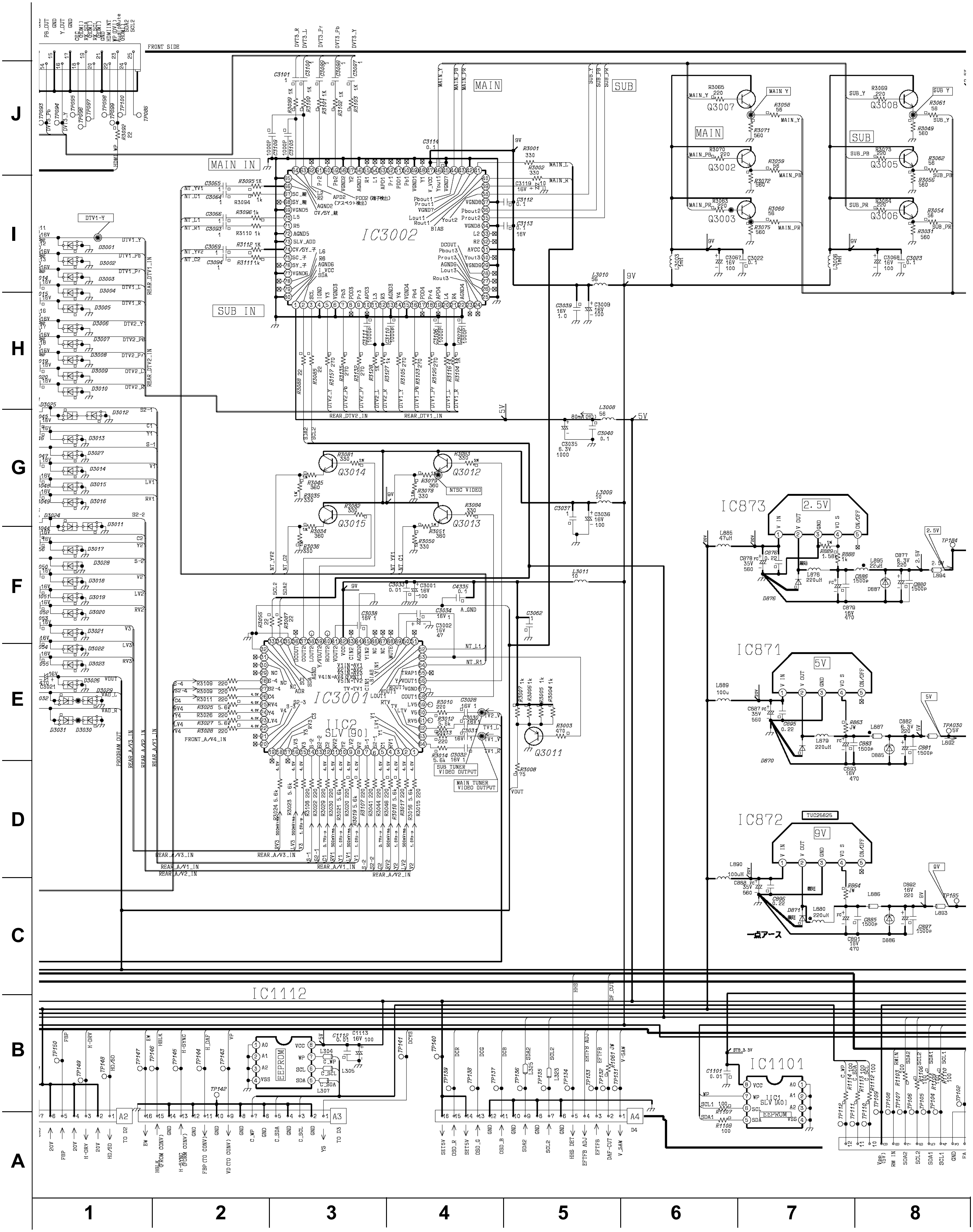
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
MAIN_Y
SUB_Y
SUB_PB
SUB_PR
MAIN_PB
MAIN_PR
SUB
Q3008
Q3005
Q3006
A17
A16
A18
DG1
DG2
DG3
A15
LG1
A10
A8
A14
A51
Q2501
Q2502
Q2503
Q2504
Q2505
Q2506
Q2507
Q2508
Q2509
Q2510
Q931
Q932
Q933
Q944
Q945
Q031
B-SLICE
S-ABL DET
2.5V
5V
9V
TUC25625
VM-out
R-GND
R-out
G-GND
G-out
B-GND
B-out
STB_3.3V
KEYSCAN1
KEYSCAN2
LED_DRV
SOS3
VAO_MUTE
A_MUTE
AFT2
AC_SW
STVB7V
STVB_GND
DF_CUT
V-SAW
SOS
EHTFB ADJ
ABL
VM-GND
18V
12V
GND
GND (VM)
S-ABL
TO BUSSCON
EEPROM
IC1101

A-BOARD 4/4 TNP2AH045 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G



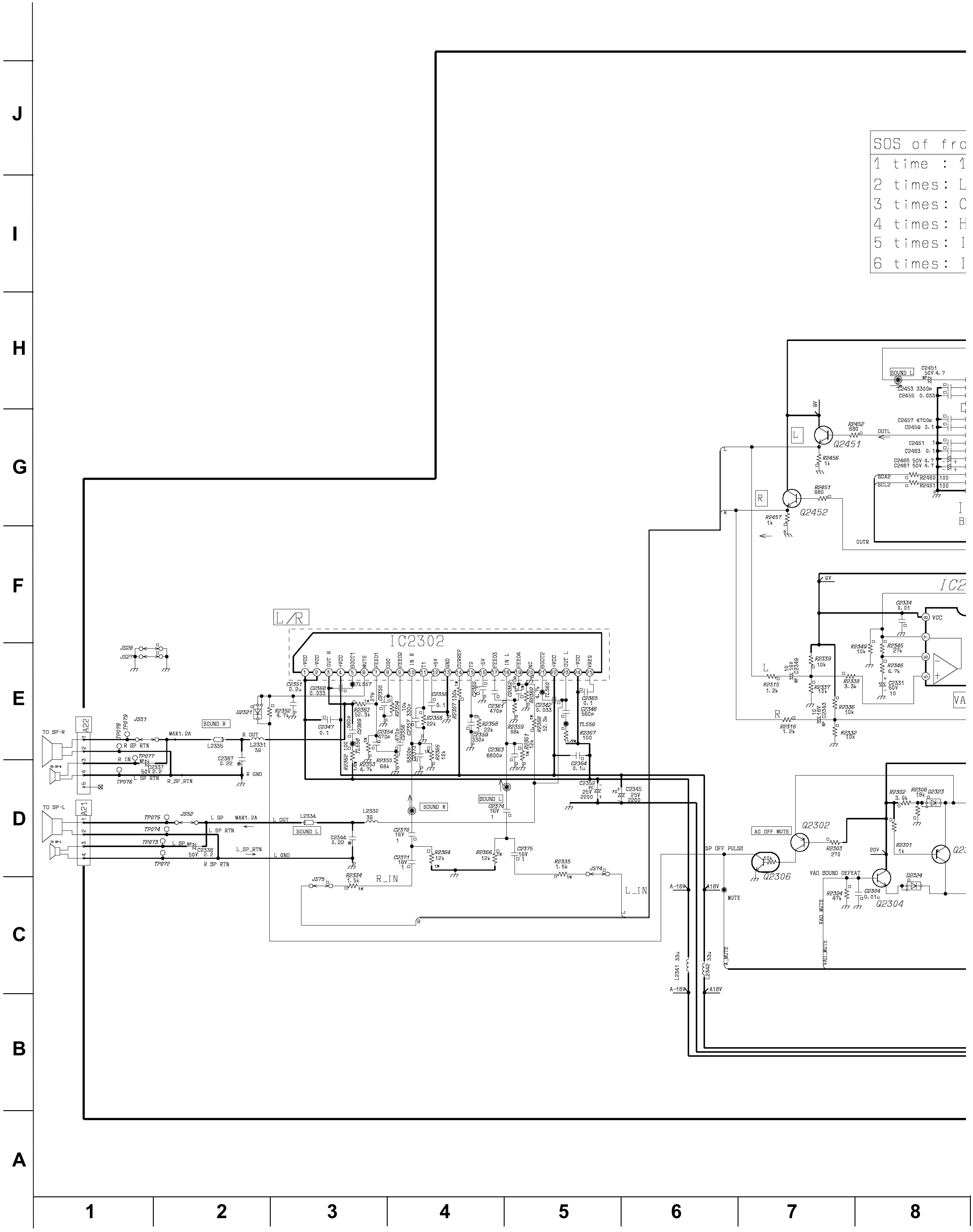
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
IC2451
IC873
IC872
IC871
IC1112
for Conv.
IC3002
IC1101
for Main
IC2201
A3
A4
A6
A8
A10
A14
A15
A16
A17
A18
A23
A24
A51
STB7V
STB3.3V
12V
Out-wL
Out-wR
2.5V
TEAMX5
94V-0
TNP2AH045 ①Ⓐ
PbF

A-BOARD 2/2 TNP2AH045 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

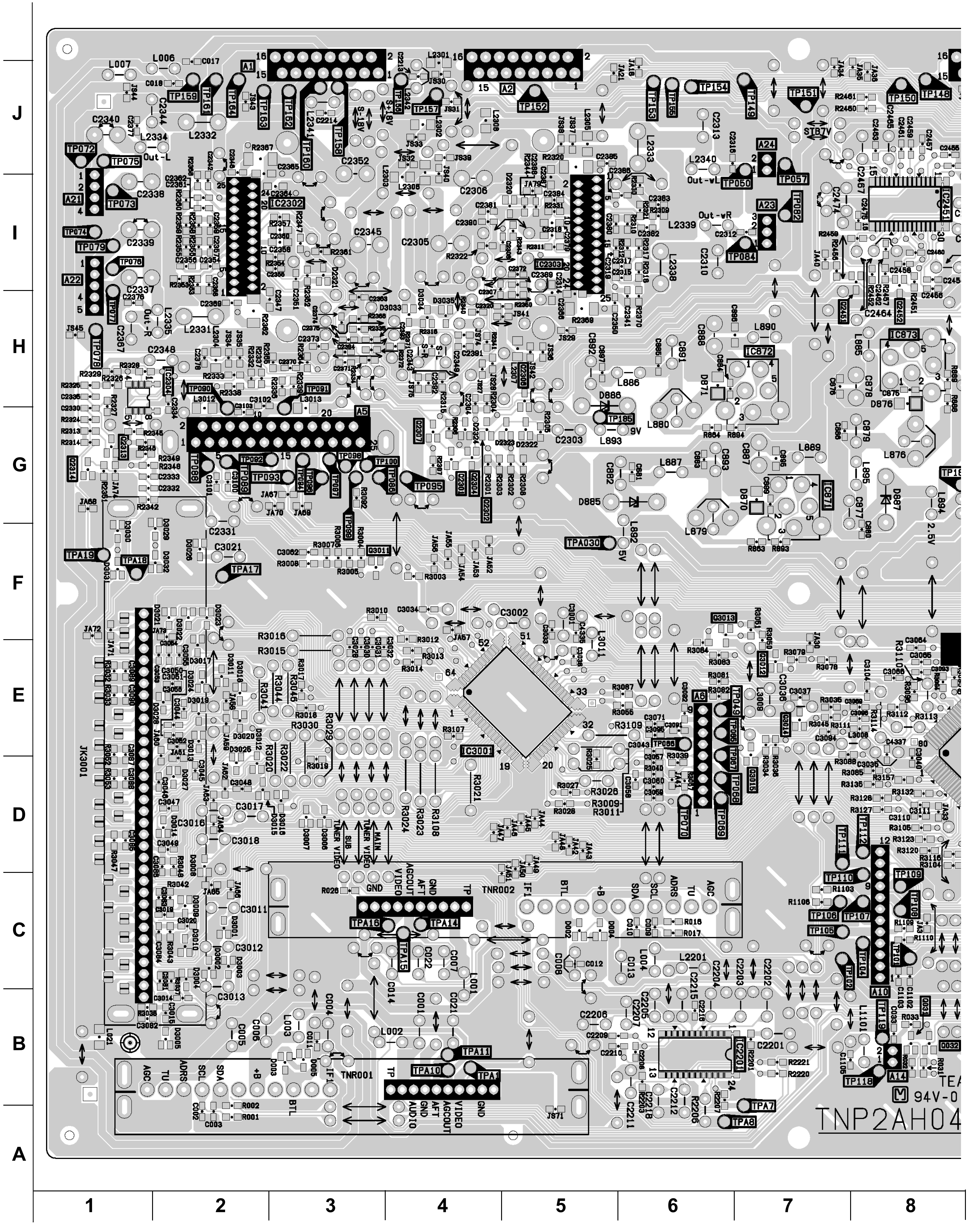


FRONT SIDE
MAIN IN
SUB IN
MAIN
SUB
IC3002
IC3001
IIC2
SLV[90]
IC873
2.5V
IC871
5V
IC872
9V
TVC25625
IC1112
IC1101
IIC1
SLV[A0]
EEPROM
NTSC VIDEO
SUB TUNER VIDEO OUTPUT
MAIN TUNER VIDEO OUTPUT
MAIN Y
SUB Y
REAR_DTV1_IN
REAR_DTV2_IN
REAR_A/V1_IN
REAR_A/V2_IN
REAR_A/V3_IN
FRONT_A/V4_IN
PROGRAM OUT
Q3001
Q3002
Q3003
Q3005
Q3006
Q3007
Q3008
Q3011
Q3012
Q3013
Q3014
Q3015
A2
A3
A4
TO D2
TO D3
D4
一点アース
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8

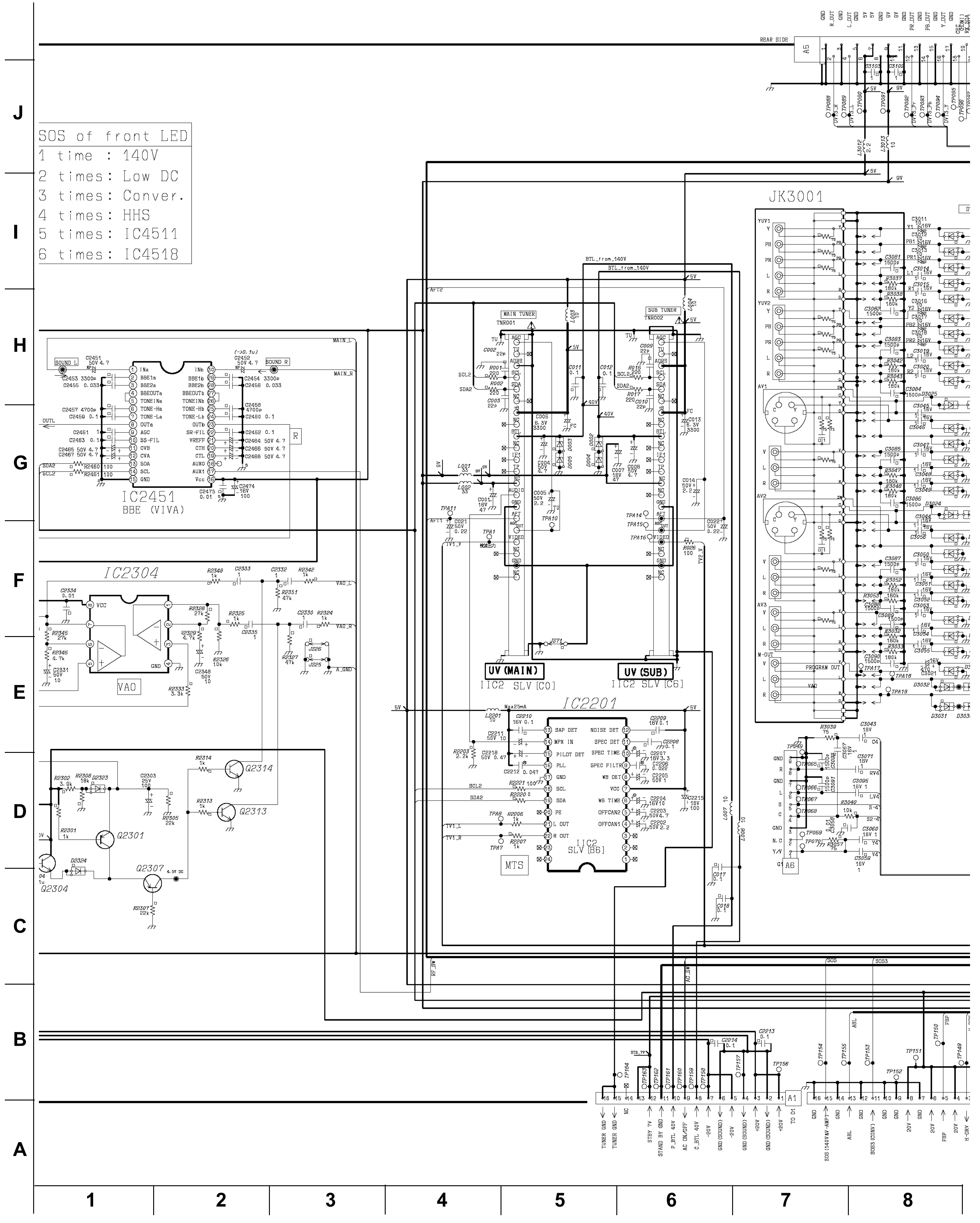
A-BOARD 3/4 TNP2AH045 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G



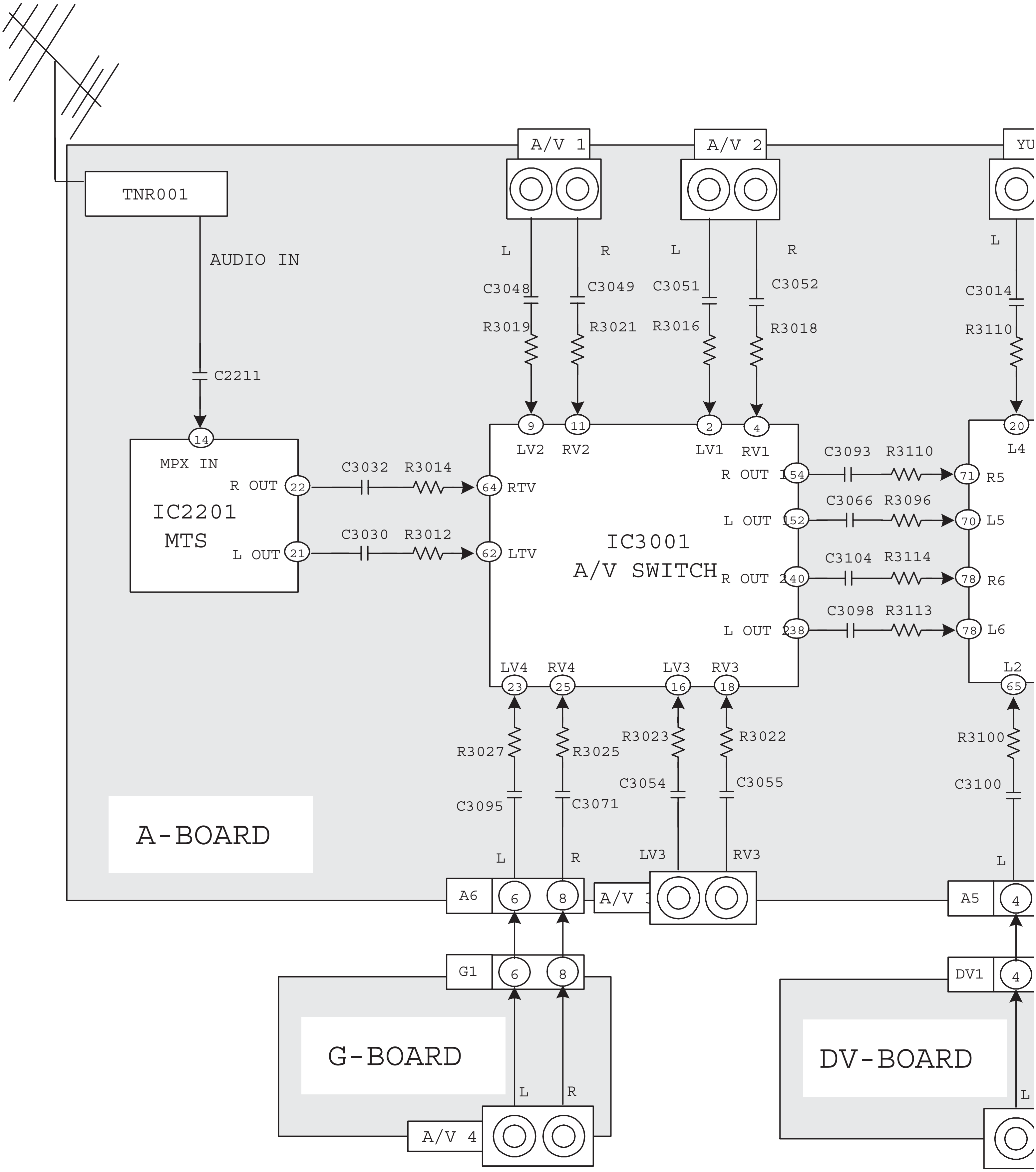
SOS of fro
1 time : 1
2 times: L
3 times: C
4 times: H
5 times: I
6 times: I
L/R
IC2302
-VCC
OUT R
+VCC
BOOT1
MUTE
FEED1
OSC
FEED2
IN R
T1
+5V
GND
CURREF
T2
-5V
FEED3
IN L
FEED4
NC
BOOT2
OUT L
VREG
TO SP-R
TO SP-L
A22
A21
R SP RTN
R IN
L SP RTN
R_SP_RTN
L SP
L SP RTN
L_SP_RTN
L GND
R SP RTN
R OUT
R GND
L OUT
MAX1.2A
SOUND R
SOUND L
L2335
L2331 39
L2334
L2332 39
C2367 0.22
C2344 0.22
C2337 50V 2.2
C2338 50V 2.2
TP078
TP079
TP077
TP076
TP075
TP074
TP073
TP072
JS51
JS52
JS28
JS27
JS75
JS74
D2321
R2352 4.7k
C2351 2.2u
C2368 0.033
TL557
TL558
TL559
TL560
C2347 0.1
R2363 52.3k
C2355 27p
C2354 470p
R2354 10k
R2353 4.7k
R2355 68k
C2356 470p
C2357 330p
C2373 6800p
R2356 22k
R2365 12k
C2358 0.1
R2357 130k
C2360
C2361 470p
R2358 22k
C2359 330p
C2363 6800p
R2359 68k
C2362 470p
R2360
R2361 12k
R2368 52.3k
C2342 0.033
C2365 0.1
C2346 560p
R2367 100
C2364 0.1u
C2352 25V 2200
C2345 25V 2200
C2374 16V 1
C2370 16V 1
C2371 16V 1
R2364 12k
R2366 12k
C2375 16V 1
R2335 1.5k
R2334 1.5k
R_IN
L_IN
R
L
A-18V
A18V
L2341 33u
L2342 33u
MUTE
A_MUTE
VAO_MUTE
SP OFF PULSE
AC OFF MUTE
Q2306
Q2302
Q2304
VAO SOUND DEFEAT
R2302 3.9k
R2308 10k
D2323
R2303 270
R2301 1k
20V
R2304 47k
C2304 0.01u
D2324
9V
Q2451
Q2452
R2452 680
R2451 680
R2456 1k
R2457 1k
OUTL
OUTR
SOUND L
C2451 50V 4.7
C2453 3300p
C2455 0.033
C2457 4700p
C2459 0.1
C2461 1
C2463 0.1
C2465 50V 4.7
C2467 50V 4.7
SDA2
SCL2
R2460 100
R2461 100
IC2
C2334 0.01
VCC
R2349 10k
R2345 27k
R2346 4.7k
R2339 10k
C2349 10 16V
R2337 10k
R2338 3.3k
C2331 50V 10
R2315 1.2k
R2316 1.2k
C2343 10 16V
R2336 10k
R2332 10k
VA
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
IC2302
IC2303
IC3001
IC2201
IC2451
IC872
IC871
IC873
IC2304
A1
A2
A5
A6
A10
A14
A21
A22
A23
A24
JK3001
TNR001
TNR002
TUNER VIDEO
SUB
TUNER VIDEO
MAIN
GND
VIDEO
AGCOUT
AFT
GND
TP
IF1
BTL
+B
SDA
SCL
ADRS
TU
AGC
AUDIO
Out-L
Out-R
Out-wL
Out-wR
S+18V
S-18V
ST87V
9V
5V
2.5V
94V-0
TNP2AH04

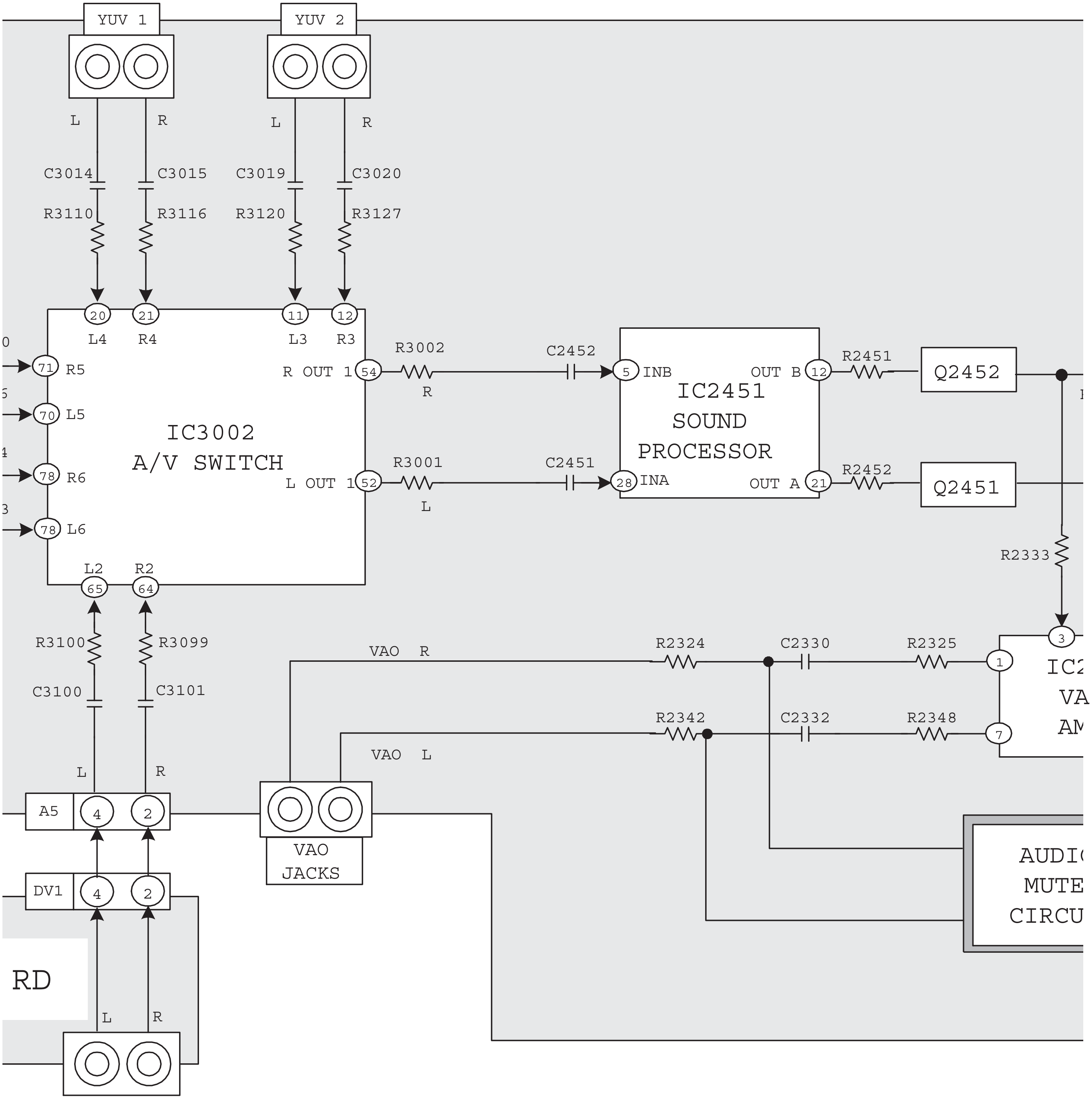
A-BOARD 1/2 TNP2AH045 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

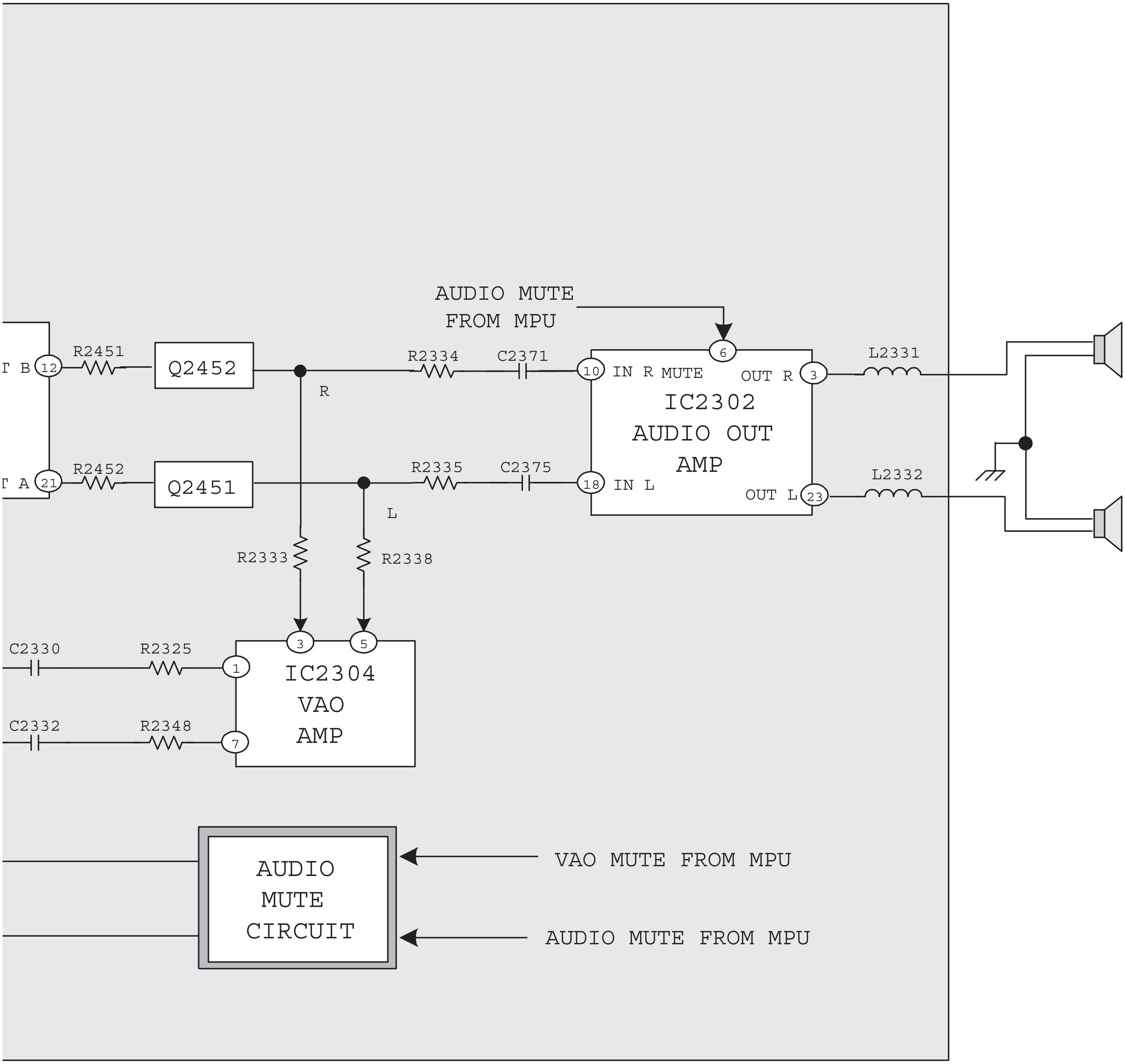

SOS of front LED
1 time : 140V
2 times: Low DC
3 times: Conver.
4 times: HHS
5 times: IC4511
6 times: IC4518
IC2451
BBE (VIVA)
SOUND L
SOUND R
OUTL
MAIN_L
MAIN_R
IC2304
VAO
VAO_L
VAO_R
A_GND
Q2314
Q2313
Q2301
Q2307
Q2304
MAIN TUNER
TNR001
SUB TUNER
TNR002
BTL_from_140V
UV (MAIN)
IIC2 SLV [C0]
UV (SUB)
IIC2 SLV [C6]
IC2201
IIC2
SLV [B6]
MTS
SAP DET
MPX IN
PILOT DET
PLL
GND
SCL
SDA
PE
L OUT
R OUT
NOISE DET
SPEC DET
SPEC TIME
SPEC FILTR
WB DET
VCC
WB TIME
OFFCAN2
OFFCAN1
JK3001
YUV1
YUV2
AV1
AV2
AV3
M-OUT
PROGRAM OUT
REAR SIDE
A5
A6
A1
TUNER GND
TUNER GND
NC
STBY 7V
STAND BY GND
P_BTL 40V
AC ON/OFF
C_BTL 40V
-20V
GND (SOUND)
-20V
GND (SOUND)
+20V
GND (SOUND)
+20V
TO D1
GND
SOS (140V&V-AMP)
GND
ABL
GND
SOS3 (CONV)
GND
GND
20V
GND
20V
FBP
20V
H-DRV
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8

A-BOARD 2/4 TNP2AH045 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G


TNR001
AUDIO IN
C2211
14
MPX IN
IC2201
MTS
R OUT
22
L OUT
21
C3032
R3014
C3030
R3012
A/V 1
A/V 2
YU
L
R
C3048
C3049
C3051
C3052
C3014
R3019
R3021
R3016
R3018
R3110
9
11
2
4
20
LV2
RV2
LV1
RV1
L4
64
RTV
62
LTV
IC3001
A/V SWITCH
R OUT 1
54
L OUT 1
52
R OUT 2
40
L OUT 2
38
C3093
R3110
C3066
R3096
C3104
R3114
C3098
R3113
71
R5
70
L5
78
R6
78
L6
L2
65
LV4
RV4
LV3
RV3
23
25
16
18
R3027
R3025
R3023
R3022
R3100
C3095
C3071
C3054
C3055
C3100
A-BOARD
L
R
LV3
RV3
L
A6
6
8
A/V 3
A5
4
G1
6
8
DV1
4
G-BOARD
DV-BOARD
L
R
A/V 4
L

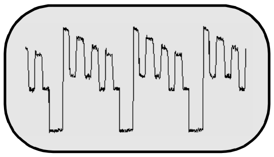
AUDIO BLOCK DIAGRAM 1/3 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

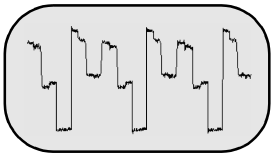

YUV 1
L
R
C3014
C3015
R3110
R3116
YUV 2
L
R
C3019
C3020
R3120
R3127
20
21
11
12
L4
R4
L3
R3
71
R5
70
L5
78
R6
78
L6
IC3002
A/V SWITCH
R OUT 1
54
L OUT 1
52
L2
R2
65
64
R3002
R
R3001
L
C2452
C2451
5
INB
28
INA
IC2451
SOUND
PROCESSOR
OUT B
12
OUT A
21
R2451
R2452
Q2452
Q2451
R2333
3
R3100
R3099
C3100
C3101
L
R
A5
4
2
DV1
4
2
VAO R
VAO L
R2324
C2330
R2325
R2342
C2332
R2348
1
7
VAO
JACKS
AUDIO
MUTE
CIRCU
RD
L
R

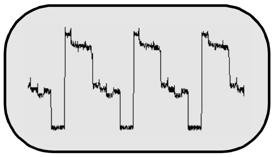

AUDIO MUTE
FROM MPU
T B
12
R2451
Q2452
R
R2334
C2371
10
IN R
MUTE
6
OUT R
3
IC2302
AUDIO OUT
AMP
L2331
T A
21
R2452
Q2451
L
R2335
C2375
18
IN L
OUT L
23
L2332
R2333
R2338
3
5
C2330
R2325
1
IC2304
VAO
AMP
C2332
R2348
7
AUDIO
MUTE
CIRCUIT
VAO MUTE FROM MPU
AUDIO MUTE FROM MPU

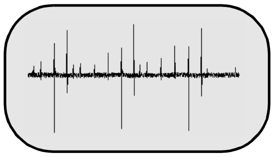
AUDIO BLOCK DIAGRAM 3/3 PT-53WX53G PT-56WX53G PT-47WX53G PT-47WX33G PT-47WXC43G PT-4743G

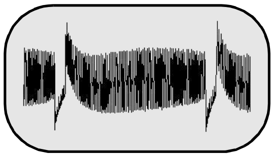
A-Board TNP2AH045

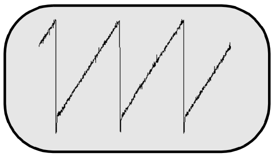

① **5.84 Vp-p**
A15 PIN 2 (BLUE OUT)

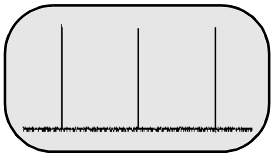

② **5.60 Vp-p**
A15 PIN 4 (RED OUT)

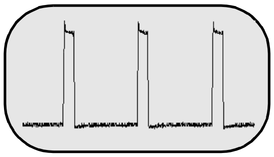

③ **6.32 Vp-p**
A15 PIN 6 (GREEN OUT)

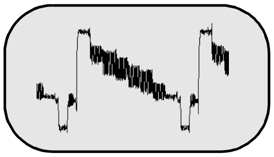

④ **2.74 Vp-p**
A15 PIN 9 (VM OUT)

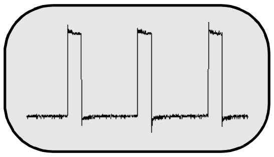

⑤ **2.52 Vp-p**
A15 PIN 11 (S-ABL)

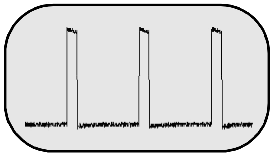

⑥ **1.15 Vp-p**
A4 PIN 1 (V-SAW)

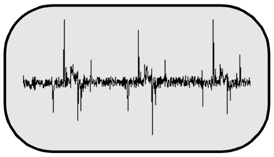

⑦ **3.52 Vp-p**
A3 PIN 9 (VD TO CONV)

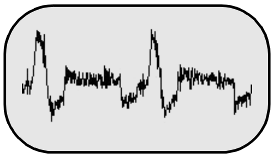

⑧ **3.88 Vp-p**
A3 PIN 11 (FBP TO CONV)

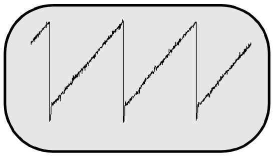

⑨ **1.00 Vp-p**
TNR001 (MAIN VIDEO)

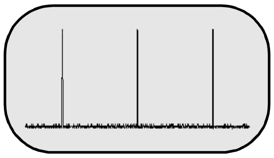

⑩ **4.36 Vp-p**
A3 PIN 15 (HBLK FROM CONV)

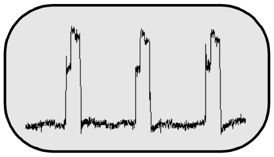

⑪ **3.6 Vp-p**
A3 PIN 16 (EW)

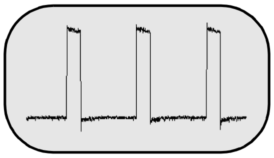

⑫ **0.26 Vp-p**
A2 PIN 1 (HD/SD)

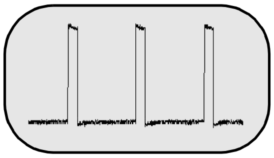

⑬ **0.16 Vp-p**
A2 PIN 11 (SOS3 CONV)

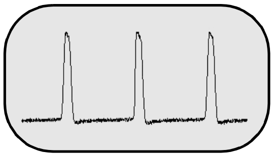

⑭ **1.24 Vp-p**
A18 PIN 13 (EHTFB ADJ)

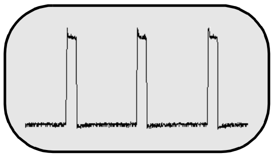

⑮ **3.44 Vp-p**
A18 PIN 21 (VP)


⑯ **0.472 Vp-p**
A18 PIN 22 (H-SYNC)

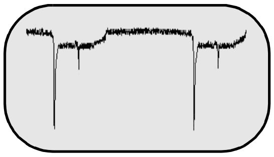

⑰ **4.12 Vp-p**
A18 PIN 23 (HBLK)


⑱ **3.64 Vp-p**
A18 PIN 26 (EW)

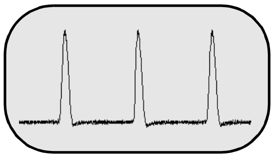

⑲ **5.65 Vp-p**
A18 PIN 28 (FBP)


⑳ **3.8 Vp-p**
A18 PIN 30 (H-DAF FBP)

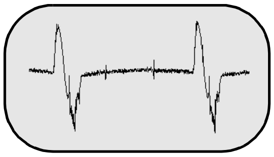
D-Board TNP2AH046



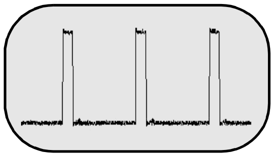
㉑ **14.8 Vp-p**
Q551-B



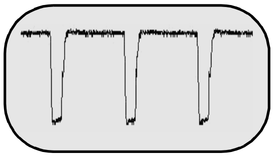
㉒ **1.6K Vp-p**
Q551-C



㉓ **0.65 Vp-p**
IC701 PIN 3

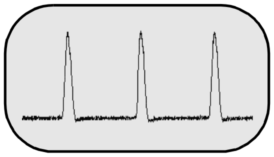


㉔ **3.56Vp-p**
IC701 PIN 6



㉕ **13.0 Vp-p**
IC701 PIN 7

LG-Board TNP2AA146



㉖ **28.0 Vp-p**
TP22 (HEATER)

1. Safety precautions

General guidelines

An isolation transformer should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injuryfrom electrical shocks. It will also protect the receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always replace protective devices, such as fish paper, isolation resistors and capacitors, and shields after servicing the receiver. Use only manufacturer's recommended rating for fuses, circuits breakers, etc.

High potentials are present when this receiver is operating. Operation of the receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautionswhen servicing high voltage equipment.

Extreme care should be practiced when handling the picture tube. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, usesafety goggles and heavy gloves for protection.

Discharge the picture tube by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a wellinsulated wire or use a grounding probe.Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to x ray radiation.

The test picture tube used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against x ray radiation as well as implosion. The magnetic shieldlimits the x ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling 50kV without causing x ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. Do not use a line isolation transformer when testing.

Leakage current cold check

Unplug the A.C. cord and connect a jumper between the two plug prongs.Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a returnpath to the chassis, the reading should be between 240k Ω and 5.2M Ω . If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

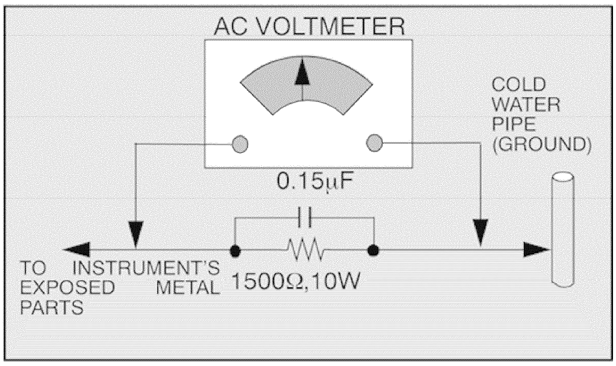
Leakage current hot check

Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check. Connect a 1.5k Ω 10 watt resistor in parallel with a 0.15 μ F capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor. Repeat the procedure and measure the voltage present with all other exposed metallic parts.

Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson model 229, Sencore model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliampere.If any measurement is out of the specified limits, there is a possibility of a shock hazard and the receiver must be repaired and rechecked before it is returned to the customer.

Hot check circuit



Insulation test
Connect an insulation tester between an exposed metallic part and A.C. line. Apply 1080VAC/60Hz for 1 second. Confirm that the current measurement is 0.5mA ~ 2.0mA. Repeat test with other metallic exposed parts.

X ray radiation

WARNING
The potential source of x ray radiation in the PTV set is in the high voltage section and the picture tube.

NOTE
It is important to use an accurate, calibrated high voltage meter.

Apply all black video signals (1080i) and confirm high voltage measures 31.5 ± 1.0kV. If the high voltage is not within the range, change C514 to 1800pF, 2000pF, 2400pF or 2700pF until the desired value is obtained.ApplyNTSC white pattern and confirm the high voltage measures 30.1 ± 1.5kV. Apply HD 1080i white pattern and confirm the high voltage measures 30.1 ± 1.5kV.

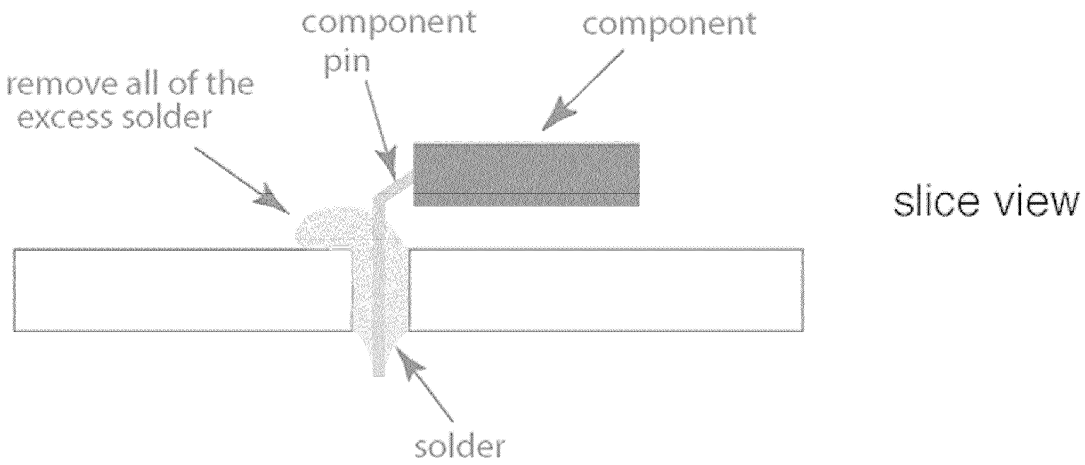
2. About lead free solder (PbF)

NOTE
Lead is listed as (Pb) in the periodic table of elements. / In the information below, Pb will refer to lead solder, and PbF will refer to Lead Free Solder. / The lead free solder used in our manufacturing process and discussed below is (Sn+Ag+Cu). / Thatis Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For / service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be / used. / PCBs manufacturedusing lead free solder will have the "PbF" or a leaf symbol stamped on the / back of PCB.

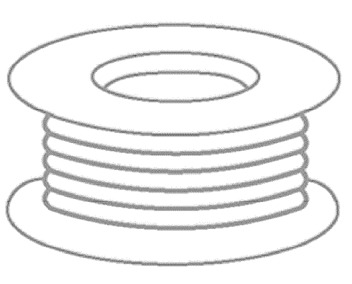
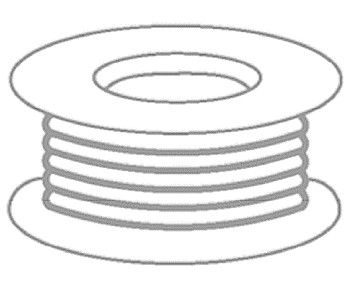
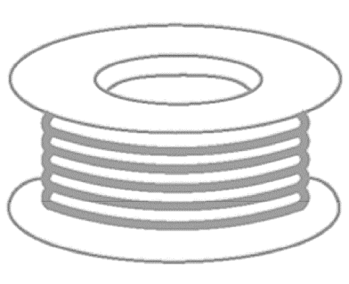
CAUTION

- **Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30 ~ 40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).**
- **Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). / If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If thisis not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.**
- **After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side.**



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also beused.

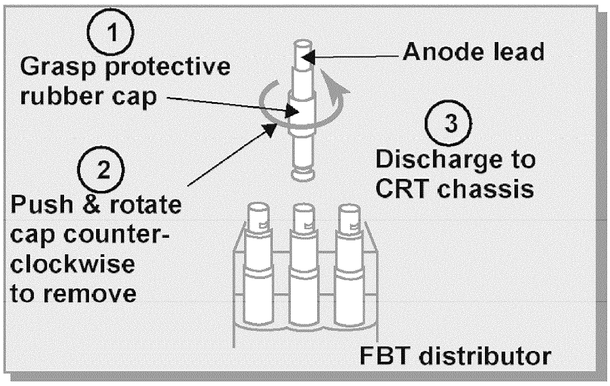
0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

3. Important safety tests

Measuring H.V.

The anode caps are cemented to the CRTs. To gain access for high voltage measurement, remove the red CRT's anode lead from the flyback transformer distributor. Grasp the anode lead protective cap at its bottom and squeeze it against thelocking cap body inside, rotate 1/4 turn counter clockwise and pull the anode lead sleeve out of the FBT distributor. Connect a high voltage positive lead from your H.V. meter to the FBT distributor, and the common negative lead to cold ground

FBT leads removal


①
Grasp protective rubber cap
Anode lead
③
Discharge to CRT chassis
②
Push & rotate cap counter-clockwise to remove
FBT distributor

Note:

Reinsert the anode lead into the FBT distributor until it is tightly and fully seated. Turn the locking cap clockwise to lock in place.

(EHT) Protector operation check

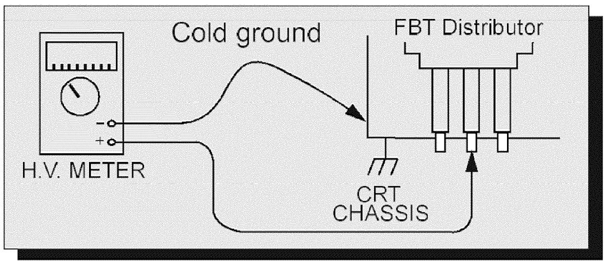
With the cabinet back removed, apply a nominal 120V A.C. to the PTV.

Over voltage test

Preparation:

1. **Turn PTV "OFF"**
2. **Connect a NTSC signal generator to the antenna terminal.**
3. **Connect DVM positive lead to D31 pin 2 and negative lead to D31 pin 1 on D-Board**

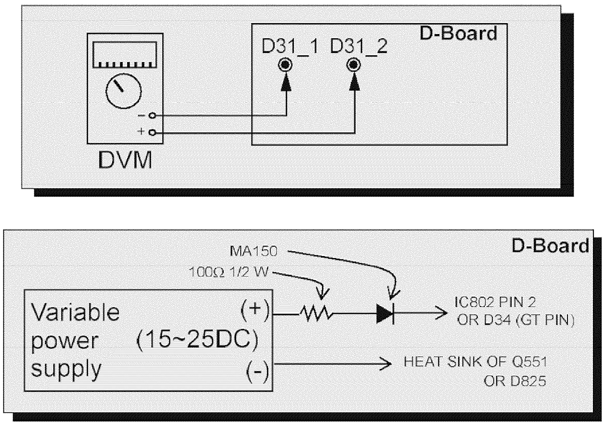
H.V. measurement


Cold ground
FBT Distributor
-
+
H.V. METER
CRT
CHASSIS

4. **Connect a H.V. meter (static type, class 0.1) with high voltage leads to**

high voltage distributor on FBT.

DVM and power supply connection


D-Board
D31_1
D31_2
-
+
DVM
MA150
100Ω 1/2 W
D-Board
Variable power supply
(+)
(15~25DC)
(-)
IC802 PIN 2 OR D34 (GT PIN)
HEAT SINK OF Q551 OR D825

5. **Connect the 15 ~ 25 V DC variable power supply positive lead to D34 or IC802 pin 2 (D Board) and negative lead to heat sink of Q551 or D825**

Procedures:

1. **Apply a NTSC white pattern.**
2. **Turn PTV ON.**
3. **Adjust the picture or brightness controls so that the DVM reads 12.4 ± 0.4 volts.**
4. **Increase the variable power supply until set turns off. The set should turn off at 12.4 ± 0.4 volts (DVM) and high voltage less than 36.4kV.**
5. **If the DVM reading is other than 12.4 ± 0.4 volts, readjust picture or brightness control and repeat steps 3.**
6. **Turn off the variable supply and confirm that the set will turn on with the remote control.**

4. Service notes

NOTE

These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless chip component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no

holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board,however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.

Chip resistor have a three digit numerical resistance code, 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6k Ω resistor, 0 = 0 Ω (jumper).

Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

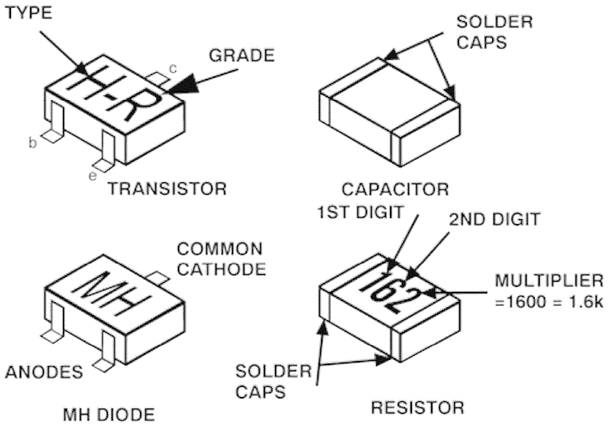
Component removal

1. **Use solder wick to remove solder from component end caps or terminal.**
2. **Without pulling up, carefully twist the component with tweezers to break the adhesive.**
3. **Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.**

Chip component installation

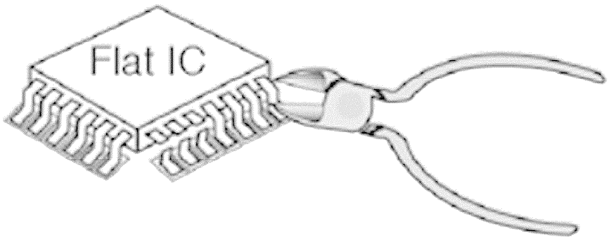
1. **Put a small amount of solder on the board soldering pads.**
2. **Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.**

Chip components

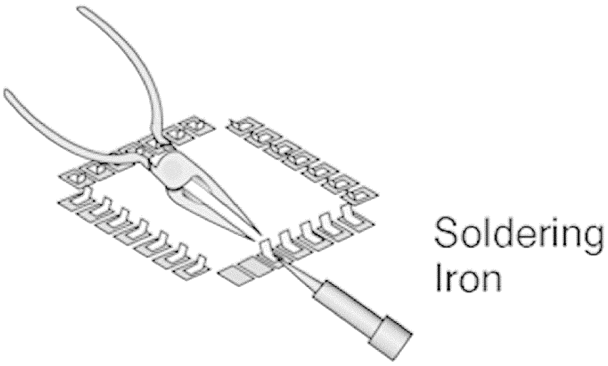


How to replace flat ic (required tools)

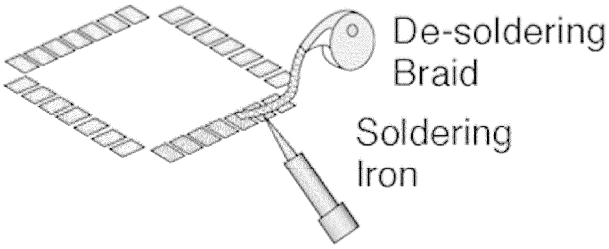
1. **Remove the solder from all of the pins of a Flat IC by using a desolder braid**



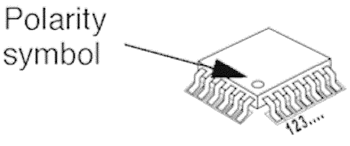
2. **Put the iron wire under the pins of the Flat IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.**

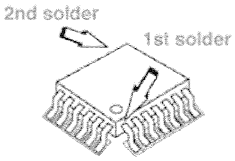

Soldering
Iron

3. **Remove the solder from all the pads of the Flat IC by using a de solder braid**

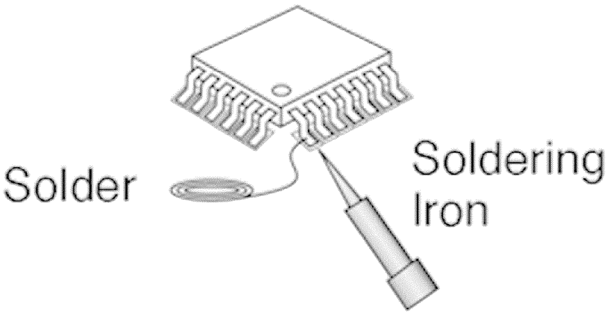

De-soldering
Braid
Soldering
Iron

4. **Position the new Flat IC in place (apply the pins of the Flat IC to the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol**

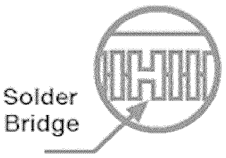

Polarity
symbol
123....

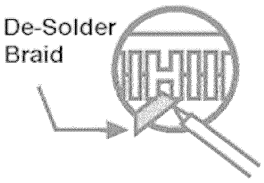

2nd solder
1st solder

5. **Solder all pins to the soldering pads using a fine tipped soldering iron**



6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de solder braid as shown in the figure below





IMPORTANT

To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires are securely connected

CAUTION

The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground(HOT or COLD) when servicing, or incorrect voltages will be measured.

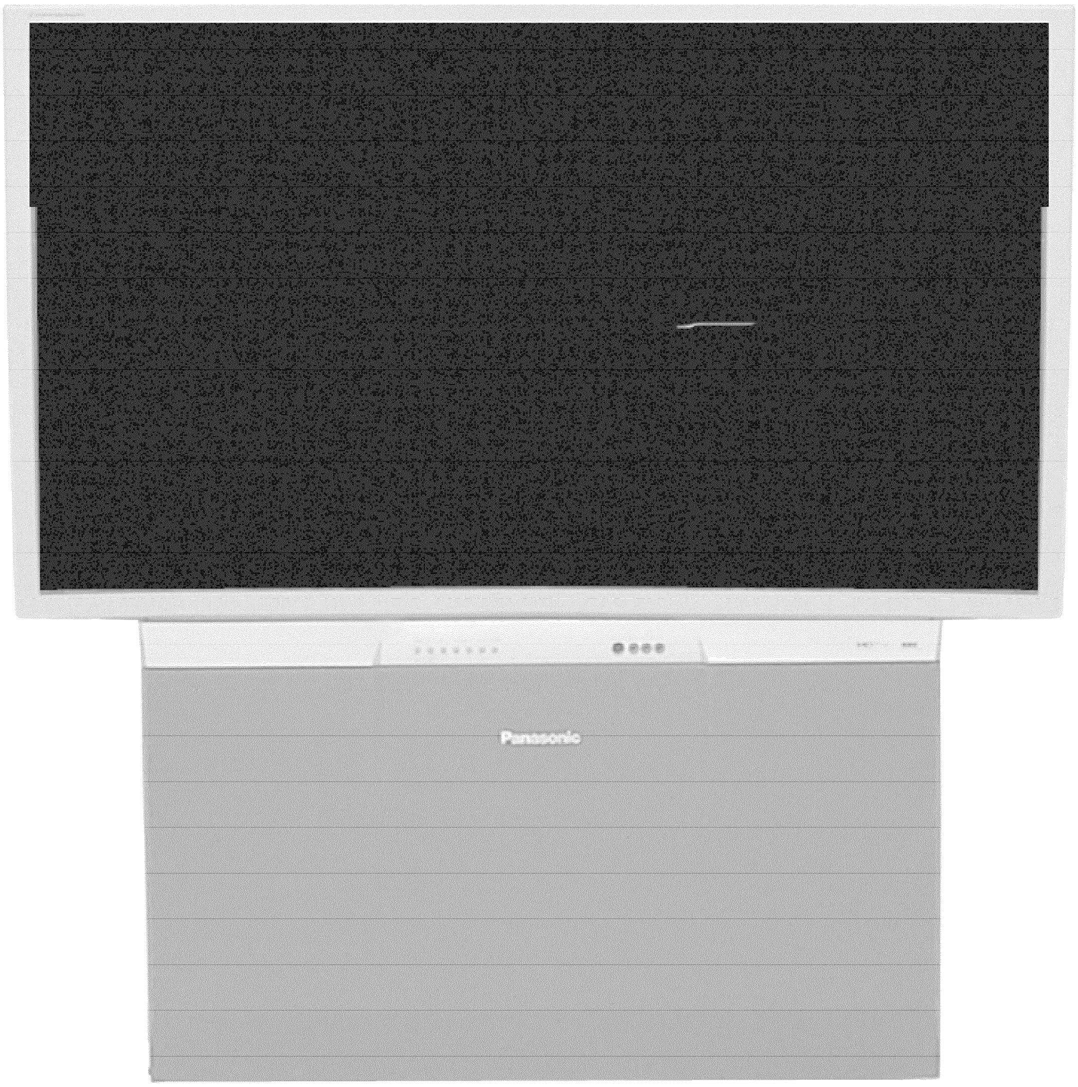
WARNING

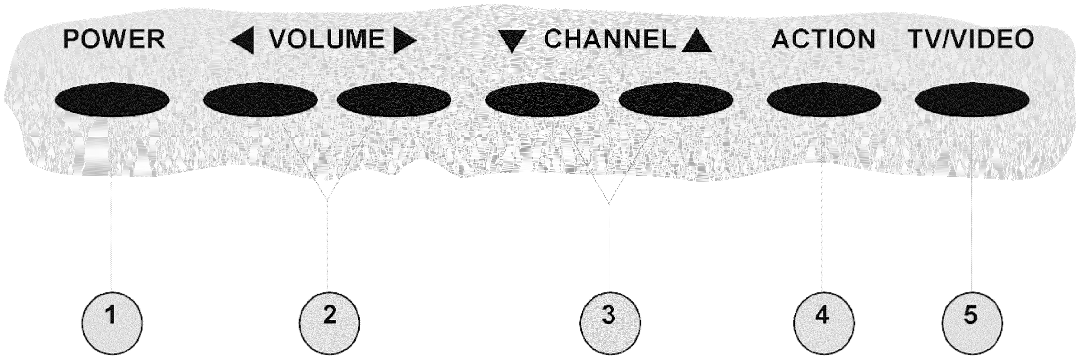
This receiver has been designed to meet or exceed applicable safety and x ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to x ray radiation and shock and fire hazard, parts indicated with the symbol ⚠ on the schematic must be replaced with identical parts. Order parts from the manufacturer'sparts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.

5. PTV Location of controls




POWER
◀ VOLUME ▶
▼ CHANNEL ▲
ACTION
TV/VIDEO
1
2
3
4
5

Quick reference control operation

① **Power** - Press to turn ON or OFF.

② **Volume** - Press to adjust sound level, or to adjust audio menus, video menus, and select operating features when menus are displayed

③ **Channel** - Press to select programmed channels. Press to highlight desired features when menus are displayed. Also use to select cable converter box channels after programming remote control infra-red codes (the TV/AUX/CABLE switch must be set in CABLE position).

④ **Action** - Press to display main menu and access on screen feature and adjustment menus.

⑤ **TV/Video** - Press to select TV or one of the video inputs, for the main picture or the PIP frame (when PIP frame is displayed).

6. Receiver feature table

FEATURE/MODEL	PT-53WX53G / PT-53WX53G/PT-47WX53G / PT-47WX53G
CHASSIS	AP825
MICRO	256K
MENU LANGUAGE	ENG/SPAN/FR
CLOSE CAPTION	X
V-CHIP (USA/CANADA	X
CHANNEL INFO BANNER	X
VIDEO INPUT SKIP	SKIP
CHANNEL COUNT	181
PIP (1T), 2T PIP (2T), 2T SPLIT	2T SPLIT
2RF	X
REMOTE CONTROL (W/LIGHT)	EUR7603Z90
CRT SUPPLIER	MDDA (CENTAUR)
SCREEN	W/PROT SCREEN
CHASSIS	P8W
COMB FILTER	MOTION ADP, 3D Y/C
HEC/VEC (X=BOTH)	X
NEW YNR	X
VM	X (DIGITAL)
V/A NORM (X=BOTH)	X
COLOR TEMP	X
AIP	X
PRESET/INPUT LABELING	X
VIDEO PICTURE MEMORY	X
DIGITAL SCAN RATE	1080i, 480p
NTSC LINE DOUBLER	480p PROGRESSIVE (NEW)
MTS/SAP/DBX	X
BUILT-IN AUDIO POWER	15Wx2 (10%)
No. OF SPEAKERS	4

FEATURE/MODEL	PT-53WX53G / PT-53WX53G/PT-47WX53G / PT-47WX53G
BASS/BALANCE/TREBLE CONTROL	X
AI SOUND	X
SURROUND	X
SPATIALIZER/BBE	BBE
A/V IN (REAR/FRONT)	4(3/1)
A/V PROGRAM OUT	X
AUDIO OUT (FAO: F, VAO:V)	F, V
COMPONENT INPUT (Y, Pb, Pr)	2
S-VHS INPUT (REAR/FRONT)	2/1
HDMI/HDCP INPUT	DVI/HDCP

Note:
Specifications are subject to change without notice or obligation.

FEATURE/MODEL	PT-47WX33G	PT-47WXC43G
CHASSIS	AP825	AP825
MICRO	256K	256K
MENU LANGUAGE	ENG/SPAN/FR	ENG/SPAN/FR
CLOSE CAPTION	X	X
V-CHIP (USA/CANADA	X	X
CHANNEL INFO BANNER	X	X
VIDEO INPUT SKIP	SKIP	SKIP
CHANNEL COUNT	181	181
PIP (1T), 2T PIP (2T), 2T SPLIT	2T SPLIT	2T SPLIT
2RF	X	X
REMOTE CONTROL (W/LIGHT)	EUR7613Z40	EUR7613Z40
CRT SUPPLIER	MDDA (CENTAUR)	MDDA (CENTAUR)
SCREEN	NO PROT SCREEN	PROT SCREEN PACKED SEPARATELY
CHASSIS	P8W	P8W
COMB FILTER	MOTION ADP, 3D Y/C	MOTION ADP, 3D Y/C
HEC/VEC (X=BOTH)	X	X
NEW YNR	X	X
VM	X (DIGITAL)	X (DIGITAL)
V/A NORM (X=BOTH)	X	X
COLOR TEMP	X	X
AIP	X	X
PRESET/INPUT LABELING	X	X
VIDEO PICTURE MEMORY	X	X
DIGITAL SCAN RATE	1080i, 480p	1080i, 480p
NTSC LINE DOUBLER	480p PROGRESSIVE (NEW)	480p PROGRESSIVE (NEW)
MTS/SAP/DBX	X	X
BUILT-IN AUDIO POWER	10Wx2 (10%)	10Wx2 (10%)
No. OF SPEAKERS	2	2

FEATURE/MODEL	PT-47WX33G	PT-47WXC43G
BASS/BALANCE/TREBLE CONTROL	X	X
AI SOUND	X	X
SURROUND	X	X
SPATIALIZER/BBE	BBE	BBE
A/V IN (REAR/FRONT)	4(3/1)	4(3/1)
A/V PROGRAM OUT	X	X
AUDIO OUT (FAO: F, VAO:V)	F, V	F, V
COMPONENT INPUT (Y, Pb, Pr)	2	2
S-VHS INPUT (REAR/FRONT)	2/1	2/1
HDMI/HDCP INPUT	DVI/HDCP	DVI/HDCP

Note:
Specifications are subject to change without notice or obligation.

FEATURE/MODEL	PT-4743G
CHASSIS	AP825
MICRO	256K
MENU LANGUAGE	ENG/SPAN/FR
CLOSE CAPTION	X
V-CHIP (USA/CANADA	X
CHANNEL INFO BANNER	X
VIDEO INPUT SKIP	SKIP
CHANNEL COUNT	181
PIP (1T), 2T PIP (2T), 2T SPLIT	2T SPLIT
2RF	X
REMOTE CONTROL (W/LIGHT)	EUR7603Z90
CRT SUPPLIER	MDDA (CENTAUR)
SCREEN	PROT SCREEN PACKED SEPARATELY
CHASSIS	P8W
COMB FILTER	MOTION ADP, 3D Y/C
HEC/VEC (X=BOTH)	X
NEW YNR	X
VM	X (DIGITAL)
V/A NORM (X=BOTH)	X
COLOR TEMP	X
AIP	X
PRESET/INPUT LABELING	X
VIDEO PICTURE MEMORY	X
DIGITAL SCAN RATE	1080i, 480p
NTSC LINE DOUBLER	480p PROGRESSIVE (NEW)
MTS/SAP/DBX	X
BUILT-IN AUDIO POWER	15Wx2 (10%)
No. OF SPEAKERS	2
BASS/BALANCE/TREBLE CONTROL	X
FEATURE/MODEL	PT-4743G
AI SOUND	X
SURROUND	X
SPATIALIZER/BBE	BBE
A/V IN (REAR/FRONT)	4(3/1)
A/V PROGRAM OUT	X
AUDIO OUT (FAO: F, VAO:V)	F, V
COMPONENT INPUT (Y, Pb, Pr)	2
S-VHS INPUT (REAR/FRONT)	2/1
HDMI/HDCP INPUT	DVI/HDCP

Note:
Specifications are subject to change without notice or obligation.

7. Board description table

BOARD	PART NUMBER	DESCRIPTION
A-BOARD	TNP2AH045	MAIN CHASSIS
D-BOARD	TNP2AH046	POWER SUPPLY
* DC-BOARD	TNPAA120	CONVERGENCE CIRCUIT
* DV-BOARD	TNP2AA114	DVI BOARD
* DG-BOARD	TNP2AA126	PIP PROCESSING, SPLIT, SEARCH, FORMATS
LB-BOARD	TNP2AA147	BLUE PRT
LR-BOARD	TNP2AA145	RED PRT
LG-BOARD	TNP2AA146	GREEN PRT
K-BOARD	TNP2AA089AA	FRONT KEY BOARD
G-BOARD	TNP2AA090AA	FRONT A/V BOARD
R-BOARD	TNPA0615AB	IR BOARD

NOTE
When ordering a replacement board assembly, append an “S” to the board number

EXAMPLE
To order the A Board, the replacement board is TNP2AH045S

*

The DC-Board, DG-Board and DV-Board are non-serviceable boards, except for DV-Board audio connector and DVI connector. If any of these boards or DV-Board components are defective, replace it with a new one.

8. Location of controls (EUR7603Z90 remote)

POWER
Press to turn ON and OFF

MUTE
Press to mute sound

TV - VCR - DBS/CBL - DVD
Press to select remote operation.

VOLUME
Press to adjust TV sound and navigate in menus.

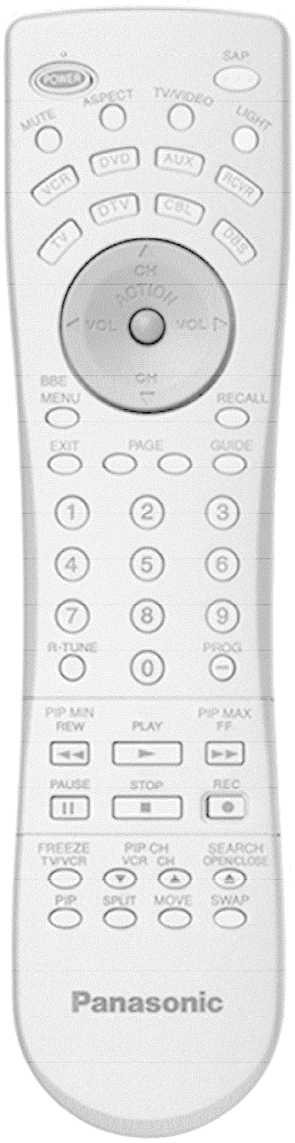
MENU
Press to acces DTV, DBS, or DVD menus.

EXIT
DBS functions button.

NUMERIC PAD
Press to select any channel

R-TUNE
Press to switch to previously viewed channel or video mode.

COMPONENT
Component function buttons.


POWER
SAP
MUTE
ASPECT
TV/VIDEO
LIGHT
VCR
DVD
AUX
RCVR
TV
DTV
CBL
DBS
CH
ACTION
VOL
VOL
CH
BBE
MENU
RECALL
EXIT
PAGE
GUIDE
1
2
3
4
5
6
7
8
9
R-TUNE
0
PROG
PIP MIN
REW
PLAY
PIP MAX
FF
PAUSE
STOP
REC
FREEZE
TV/VCR
PIP CH
VCR CH
SEARCH
OPEN/CLOSE
PIP
SPLIT
MOVE
SWAP
Panasonic

SAP
Access second audio program.

TV/VIDEO
Press to select TV, Video mode

LIGHT
Press to illuminate buttons

CHANNEL
Press to select next or previous channel and navigate in menus.

RECALL
Press to display time, channel, sleep timer and other options.

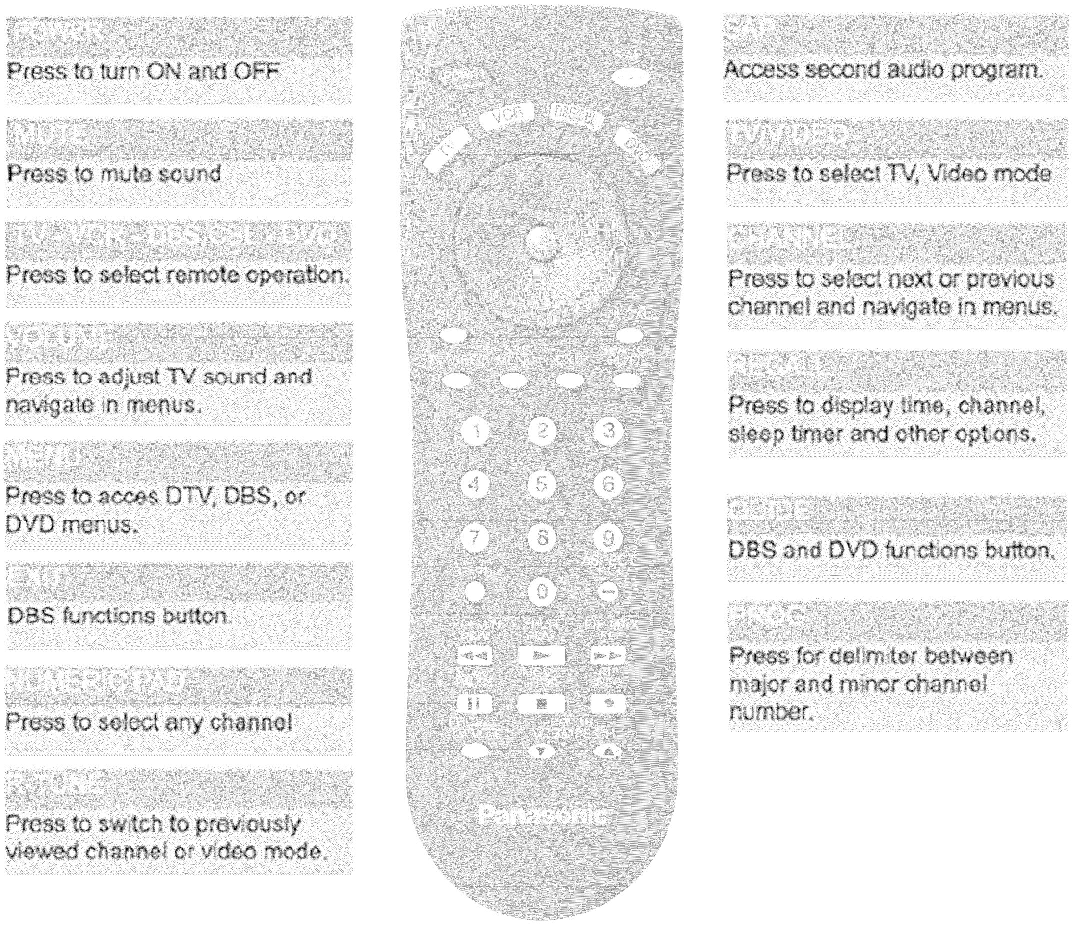
GUIDE
DBS and DVD functions button.

PROG
Press for delimiter between major and minor channel number.

PIP SPLIT MOVE SWAP FREEZE PIPCH SEARCH
PIP FUNCTION BUTTONS

Note:
For additional information for this remote please refer to the owner's manual section remote operation, listed on the parts list section.

9. Location of controls (EUR7613Z40 remote)


POWER
SAP
TV
VCR
DBS/CBL
DVD
CH
VOL
VOL
CH
MUTE
RECALL
TV/VIDEO
BBE MENU
EXIT
SEARCH GUIDE
1
2
3
4
5
6
7
8
9
R-TUNE
0
ASPECT PROG
PIP MIN REW
SPLIT PLAY
PIP MAX FF
SWAP PAUSE
MOVE STOP
PIP REC
FREEZE TV/VCR
PIP CH VCR/DBS CH
Panasonic

POWER
Press to turn ON and OFF

MUTE
Press to mute sound

TV - VCR - DBS/CBL - DVD
Press to select remote operation.

VOLUME
Press to adjust TV sound and navigate in menus.

MENU
Press to acces DTV, DBS, or DVD menus.

EXIT
DBS functions button.

NUMERIC PAD
Press to select any channel

R-TUNE
Press to switch to previously viewed channel or video mode.

SAP
Access second audio program.

TV/VIDEO
Press to select TV, Video mode

CHANNEL
Press to select next or previous channel and navigate in menus.

RECALL
Press to display time, channel, sleep timer and other options.

GUIDE
DBS and DVD functions button.

PROG
Press for delimiter between major and minor channel number.

Note:
For additional information for this remote please refer to the owner's manual section remote operation, listed on the parts list section.

10. Auto diagnosis feature

This receiver incorporates a new self diagnosis feature. With this new feature will be easier for the technician to detect the failures. There is a LED located by the keyboard on the front panel, this LED will start flashing when SOS is detectedby the circuits located in specific areas, depending on how many times the LED is flashing, this will tell you what circuit should be checked. Make a count of flashing and see the table shown below. Please use this feature effectively especially forintermittent problems.

NUMBER OF FLASHES	POSSIBLE CIRCUIT
1	+140
2	LOW D.C.
3	CONVERGENCE
4	HHS
5	IC4511
6	IC4518

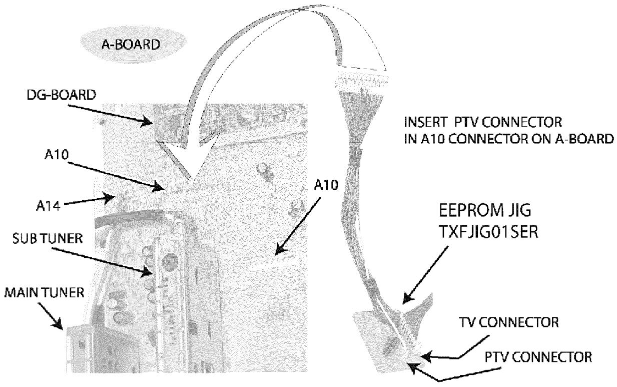
11. EEPROM copy jig

This PTV has a feature that allows to clone convergence and main EEPROM data adjustments from a PTV to other by connecting a jig to the PTV set. A jig part number TXFJIG01SER, is available through Matsushita/Panasonic Services.

Preparation:

To connect this jig, remove the lower back cover as instructed on disassembly for service section on this service manual and insert the jig into A10 connector located on the A-Board. (See figure)

EEPROM copy jig connection


A-BOARD
DG-BOARD
A10
A14
SUB TUNER
MAIN TUNER
A10
INSERT PTV CONNECTOR
IN A10 CONNECTOR ON A-BOARD
EEPROM JIG
TXFJIG01SER
TV CONNECTOR
PTV CONNECTOR

Procedure to copy data:

1. **Enter to service mode and display service menu.**
2. **Select "AREA" DAC and then press ACTION button on remote to enter. Press VOL right/left to select one of the following options then press ACTION:**
    - **Select ALL to copy all main EEPROM data**
    - **Select ADJ to copy only adjustment data.**
    - **Select FIX to copy only fix data**
3. **To copy data from main EEPROM to jig, select "IN → EX" DAC and press ACTION button on remote.**
4. **To copy data from jig to main EEPROM, select "EX → IN" DAC and press ACTION button on remote.**

Procedure to copy convergence:

1. **Enter to service mode and display service menu**
2. **Select "FINE" DAC and press ACTION on remote.**
3. **Press "8" on remote.**
4. **Select from and then press ACTION on remote:**
    - **INT to copy data from internal EEPROM to jig**

- EXT to copy from jig to internal EEPROM.

5. Then select from and press ACTION on remote:

    - 480i_p format
    - 1080i format
    - Z480i format (480i ZOOM mode)
    - NOT USE to back up data
    - ALL to copy all convergence data from internal EEPROM
    - D480i (default factory preset)
    - D1080i (default factory preset)

    NOTE:
    The stated as default factory preset contain the factory DATA; Use these when data was lost or is hard to adjust.

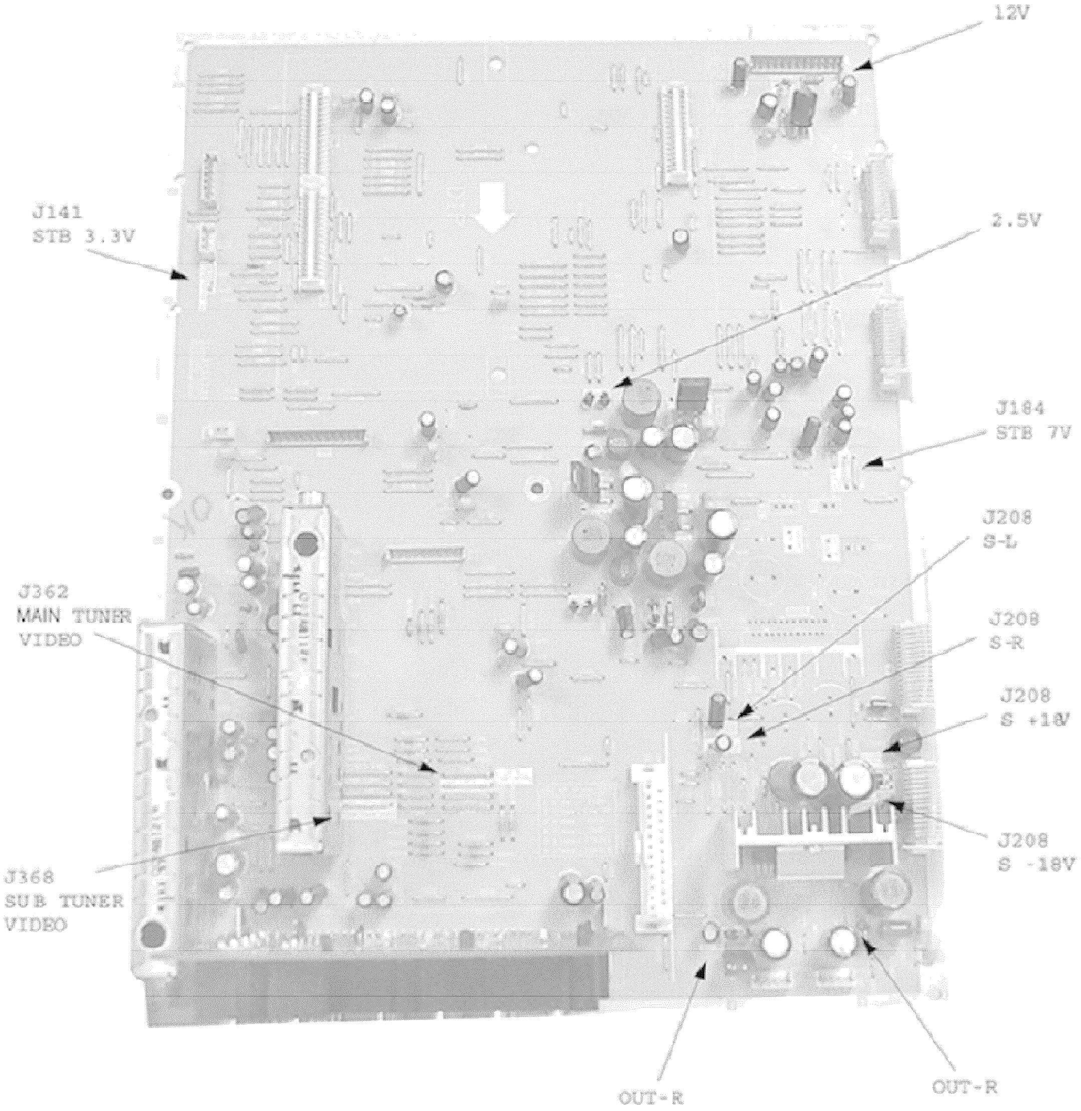
6. Select from and then press ACTION on remote:

    - INT to copy data to internal EEPROM
    - EXT to copy data to jig.

7. Then select which data format you want to copy to.
8. When completed, exit the service mode.

12. A-Board check points

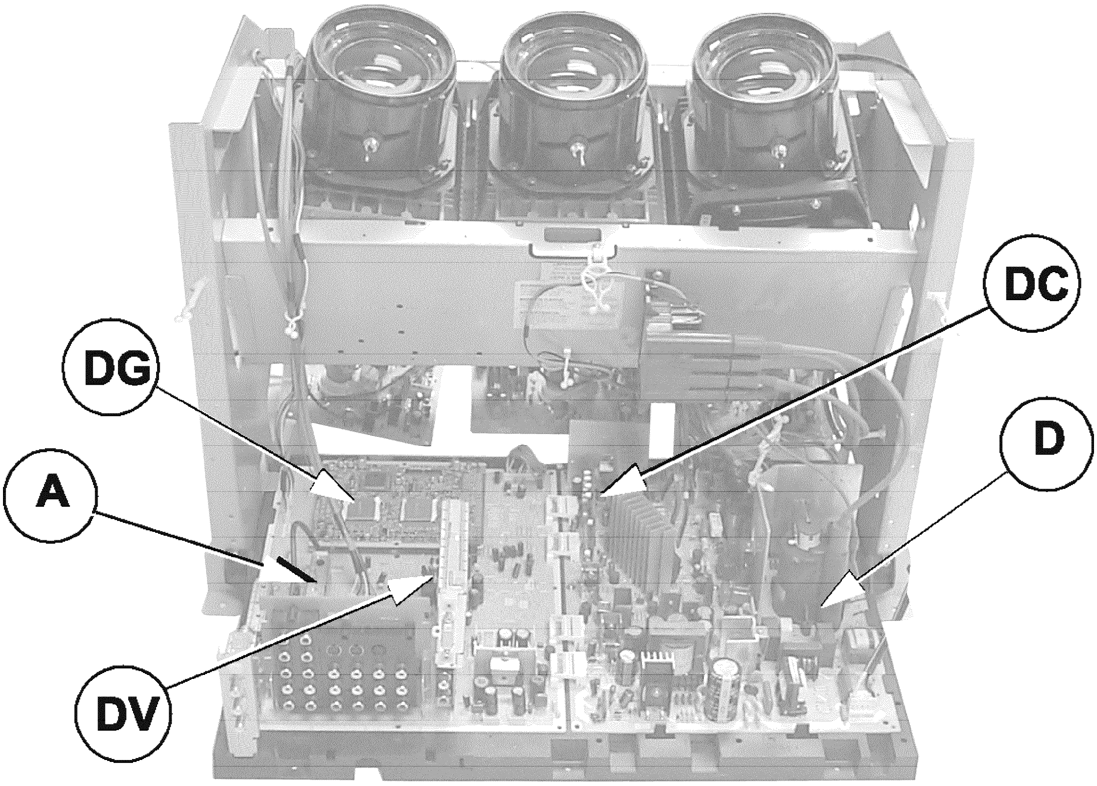
A-Board check points


12V
J141
STB 3.3V
2.5V
J184
STB 7V
J208
S-L
J208
S-R
J208
S +18V
J362
MAIN TUNER
VIDEO
J208
S -18V
J368
SUB TUNER
VIDEO
OUT-R
OUT-R

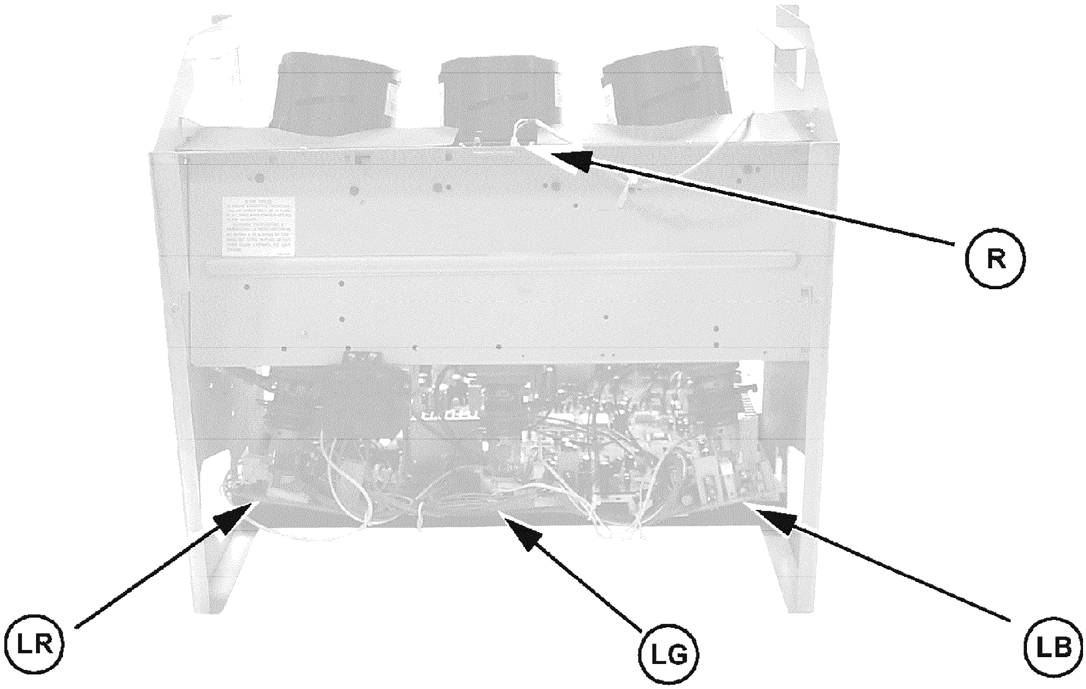
NOTE:
All the measurements are in DC with a digital multimeter, color bar pattern, picture settings normalized and sound set to minimum.

13. Chassis& boards layout (location of main components)

Chassis and boards layout

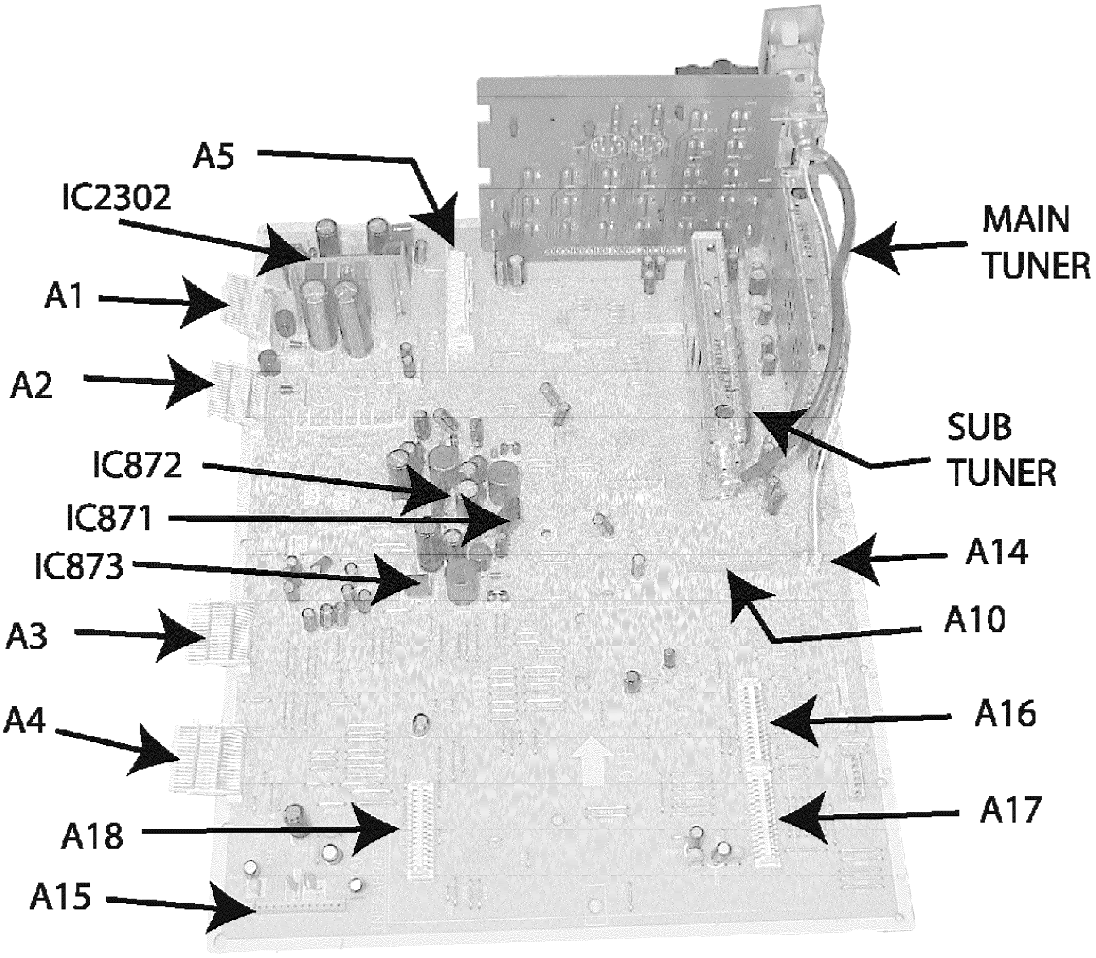


Back View

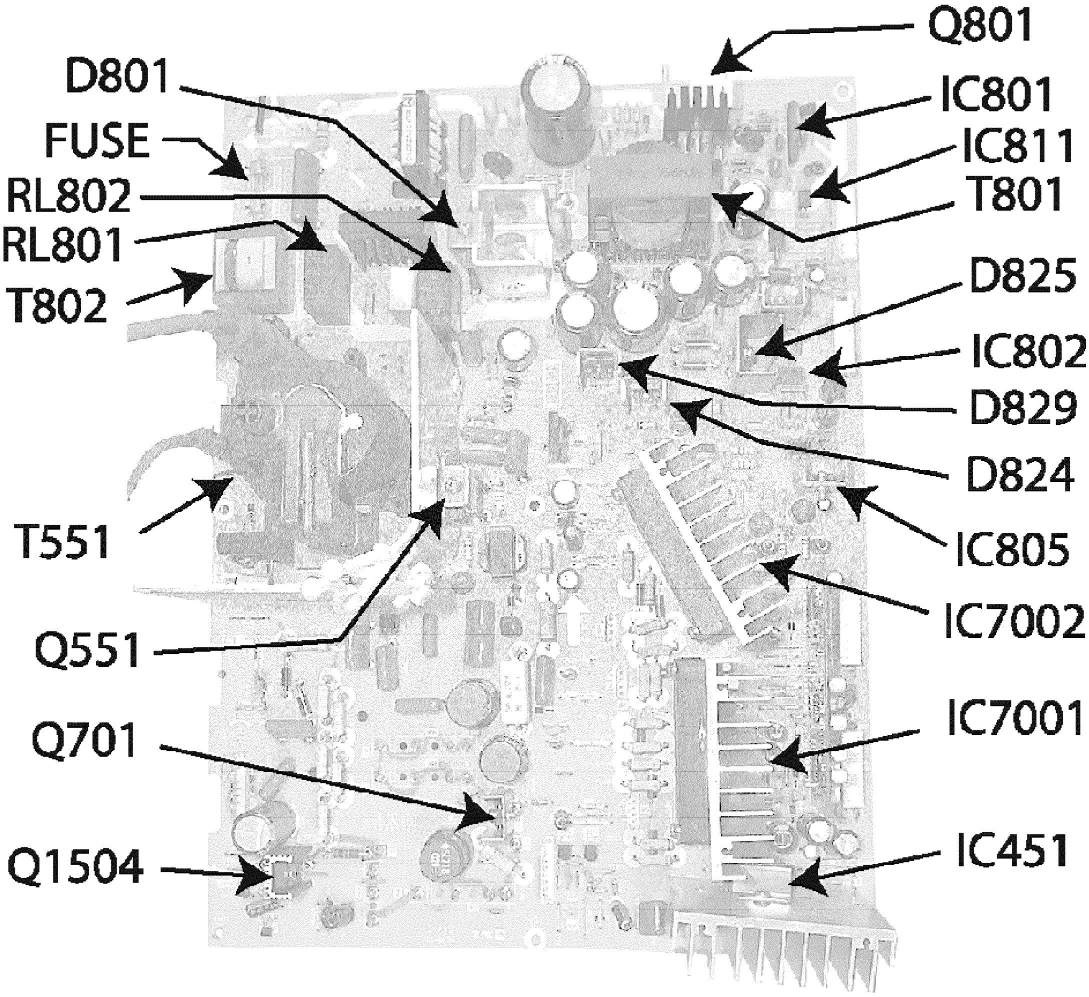


Front View

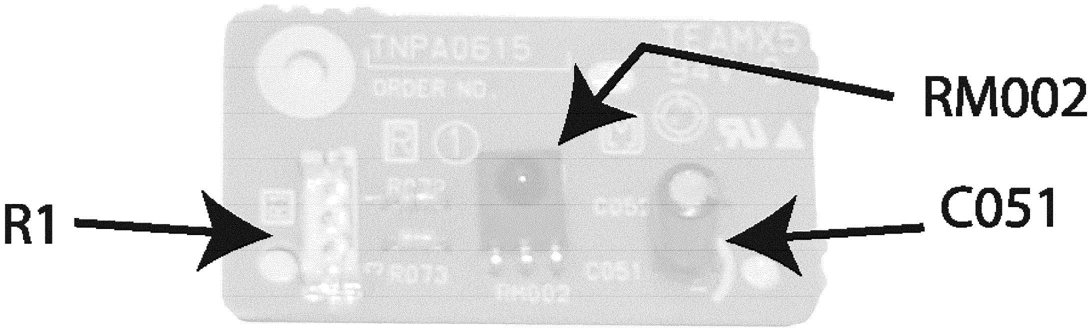
A-BOARD


A5
IC2302
A1
A2
IC872
IC871
IC873
A3
A4
A18
A15
MAIN TUNER
SUB TUNER
A14
A10
A16
A17

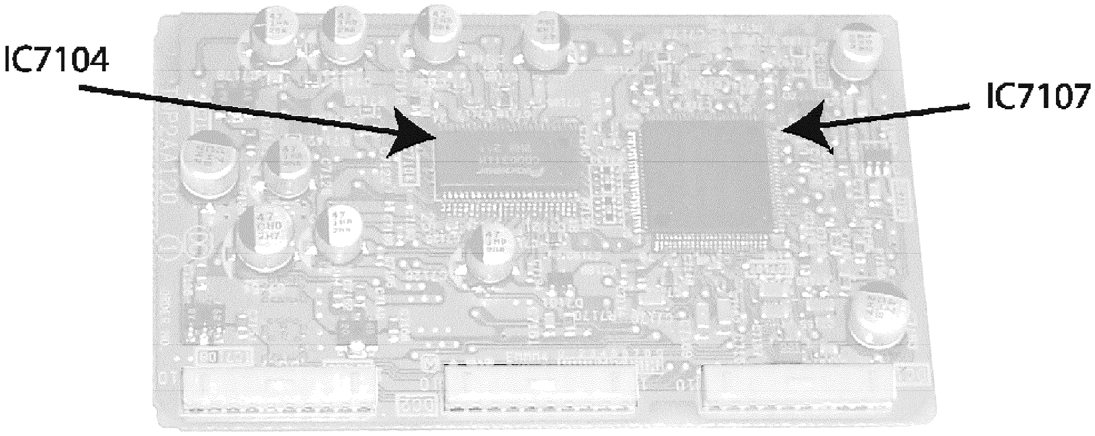
D-BOARD


D801
FUSE
RL802
RL801
T802
T551
Q551
Q701
Q1504
Q801
IC801
IC811
T801
D825
IC802
D829
D824
IC805
IC7002
IC7001
IC451

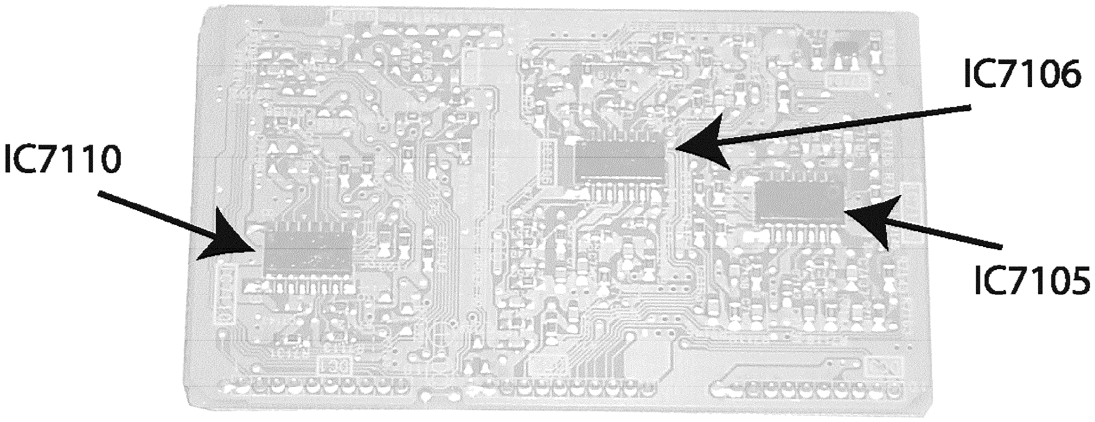
R-BOARD VIEW


RM002
R1
C051
TNPA0615
ORDER NO.
R073
RM002
C051

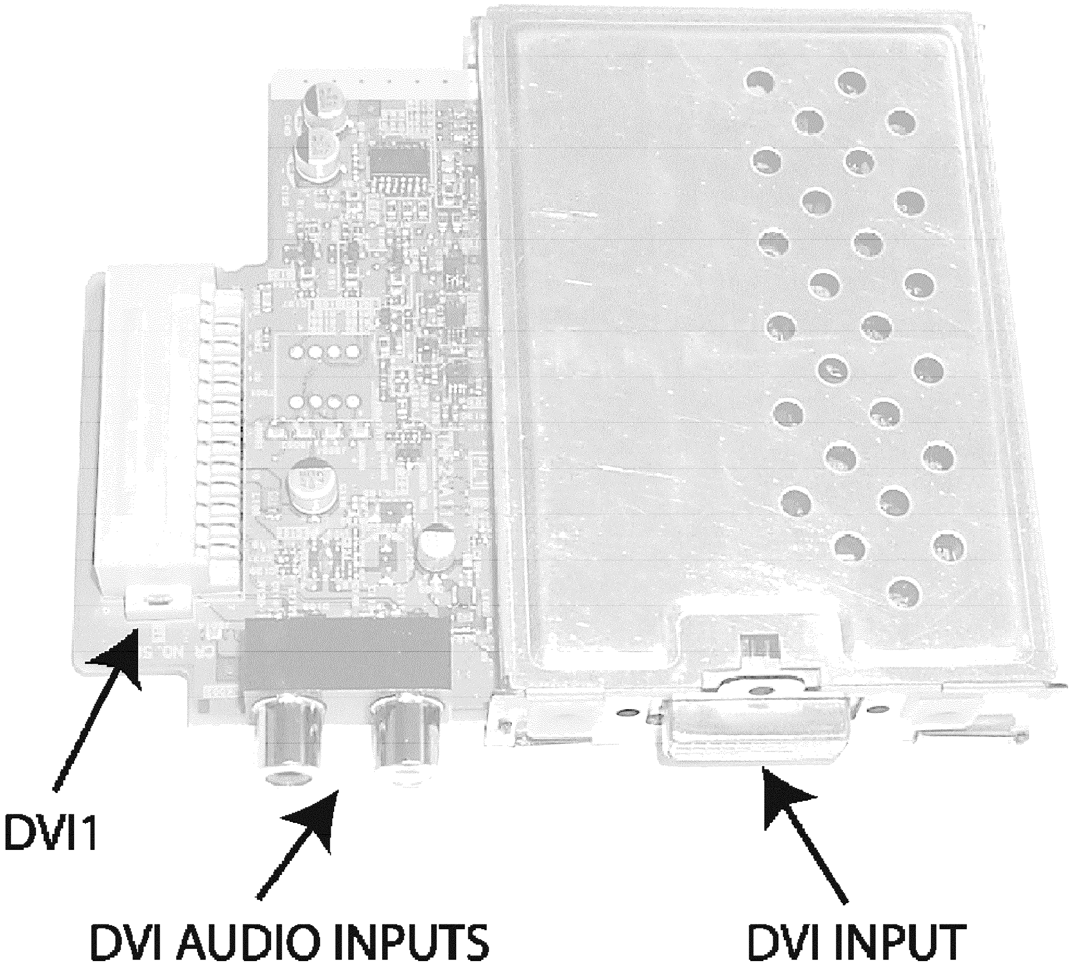
DC-BOARD TOP VIEW


IC7104
IC7107

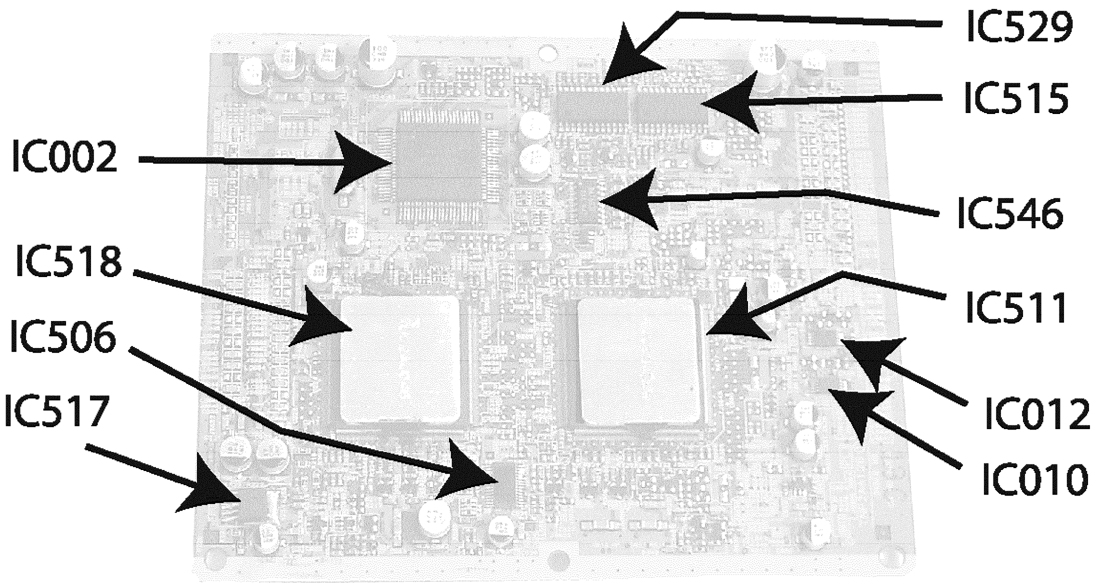
DC-BOARD BOTTOM VIEW


IC7106
IC7110
IC7105

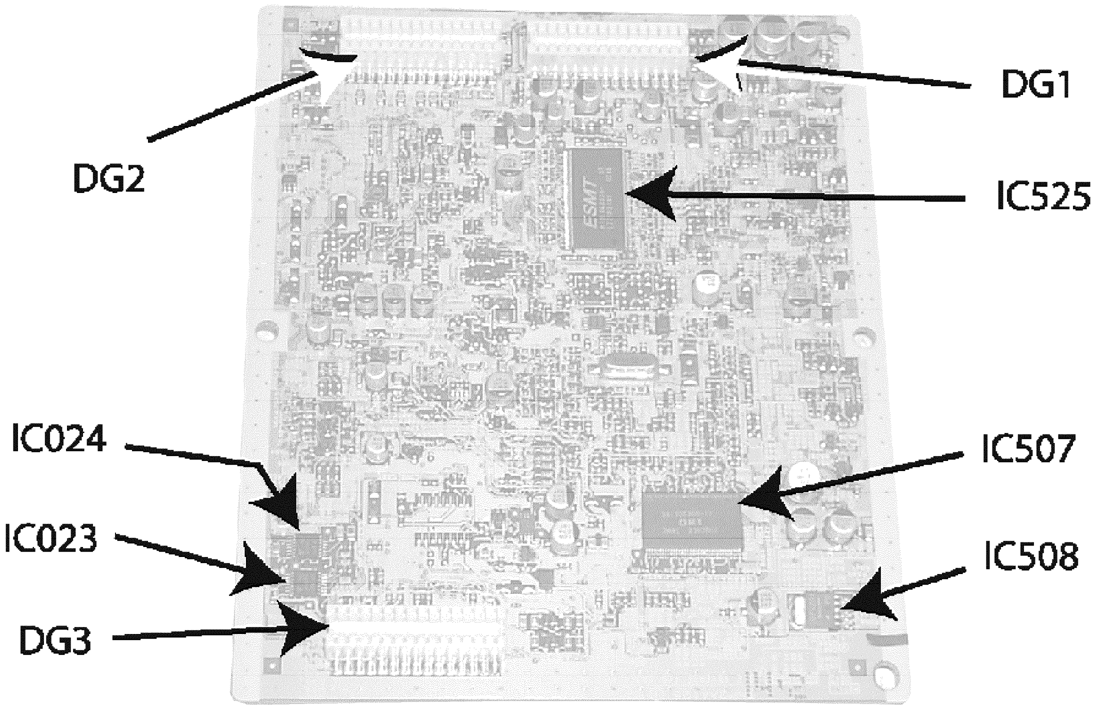
DV-BOARD


DVI1
DVI AUDIO INPUTS
DVI INPUT

DG-BOARD TOP VIEW


IC529
IC515
IC002
IC546
IC518
IC511
IC506
IC012
IC517
IC010

DG-BOARD BOTTOM VIEW

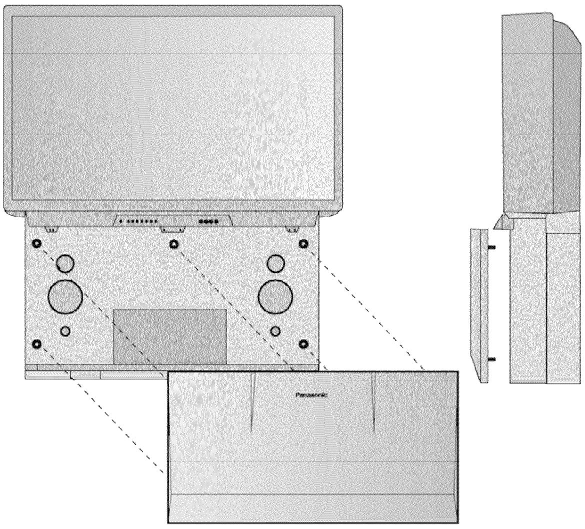


14. Disassembly for service

NOTE:
Board ground wires may have to be disconnected to disassemble some boards. All ground wires must be reconnected using jumper leads, if necessary, before power is applied to PTV for service.

Speaker grille removal
Some models come with three pieces (sides for speakers and center cover); Speaker grille(s), it is secured to the cabinet of the PTV or on the sides. Grip panel(s) from the sides and middle upper part for one piece models, gently pull forward toremove. When reassembling, make certain to firmly press on the panel where the insertion points (5) are located, one at each corner and one at the middle top edge

Speaker grille removal (may vary)



Keyboard and front A/V inputs removal

1. Remove the speaker grille.
2. Unplug the connectors from the keyboard and front A/V inputs assemblies. Remove the screws from the control panel and tilt the front panel assembly upward and release it from the front cabinet. Then remove the screws affixing the keyboardand front A/V inputs to the control panel.

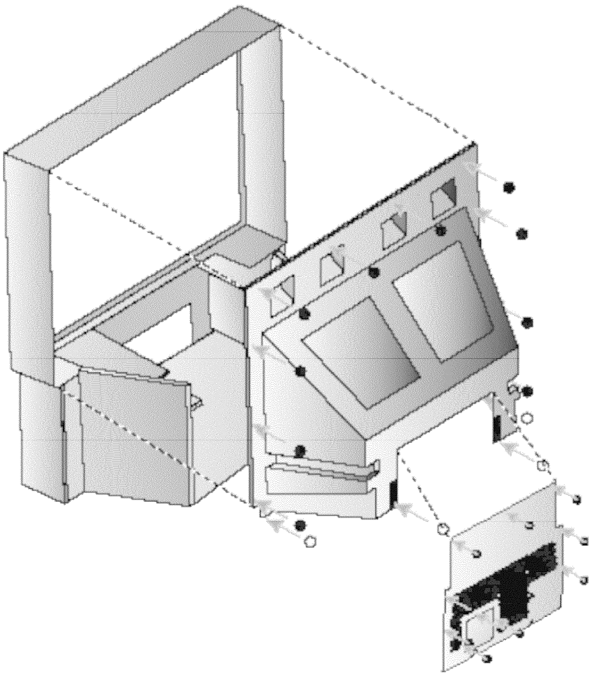
Speakers replacement

1. Remove the speaker grille.
2. Each speaker is secured to the cabinet with (4) screws.
3. Disconnect the R and L speaker lead connectors from the speaker units.

Back lower cover removal

1. Remove (7) hex screws around the perimeter, marked with arrows. See figure for screws location.
2. Remove (3) screws from around the A/V terminal board (marked with arrows).

Back lower cabinet removal



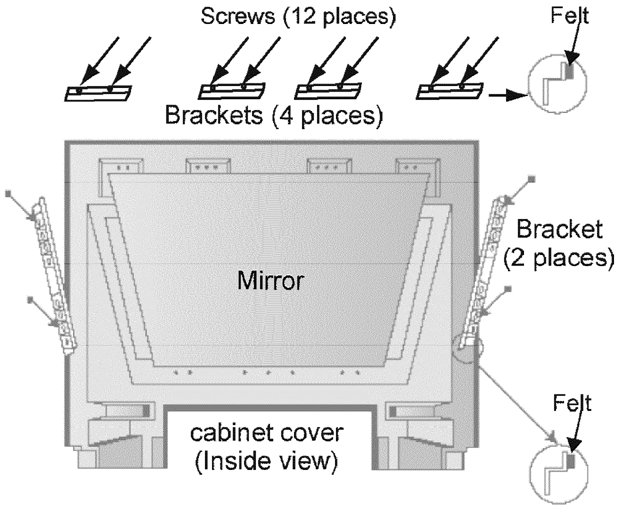
Back cabinet removal

1. **Remove the back lower cover. (Detailed previously).**
2. **The top back cover (plastic shell) is secured with (14) screws around its perimeter. See figure for screws location.**
3. **Be careful not to damage the mirror secured to the underside of the back cover.**

Mirror removal

The mirror is attached inside the cabinet cover. Carefully remove the cabinet cover to access its interior surface and remove the screws securing the brackets that hold the mirror at the top and sides to the mirror.

Mirror removal


Screws (12 places)
Felt
Brackets (4 places)
Bracket
(2 places)
Mirror
Felt
cabinet cover
(Inside view)

Screen frame removal

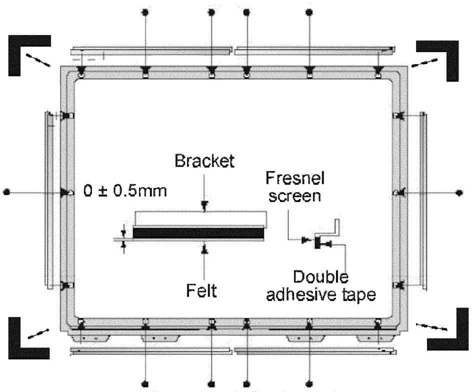
1. **Remove the speaker grille. Disconnect the cables leading to the keyboard and the AV panels and remove the keyboard and AV panel assembly. The assembly is secured by three (3) screws.**
2. **At this point the front cover is held only by four screws, be careful not to push the cabinet forward.**
3. **Remove screws and tilt the assembly forward while lifting it out of place.**

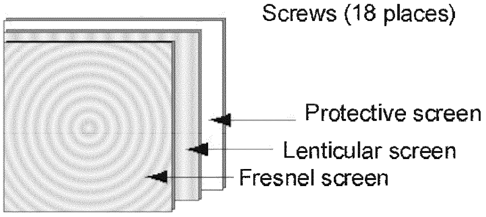
Screen assembly

1. **Remove the screen frame. See screen frame removal procedure above.**
2. **Place screen frame face down on a soft surface.**
3. **Remove all screen brackets and corner brackets**

Note:
The brackets are painted black (permanent marker) on the edge to prevent reflection on image.

Screen assembly


Bracket
Fresnel screen
0 ± 0.5mm
Felt
Double adhesive tape
Screws (18 places)


Protective screen
Lenticular screen
Fresnel screen

4. **Remove the horizontal barrier panel at the back of the cabinet.**
5. **Unplug connectors (K1, G1 and speaker connectors) and pull out the main chassis block.**

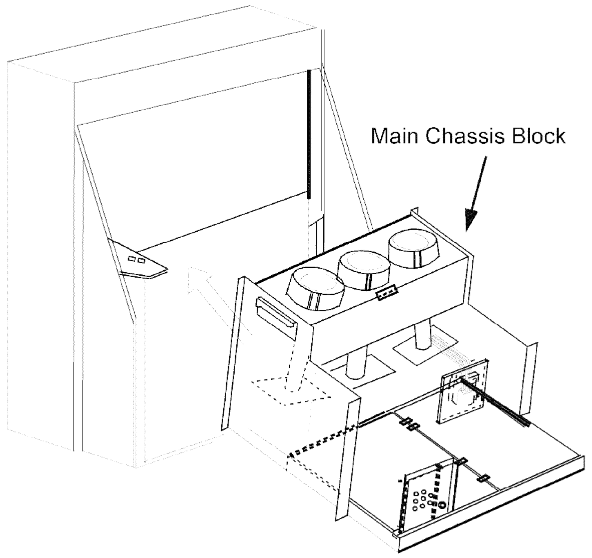
Note:

Main chassis block can be serviced either in normal position or laying on its back (protect hookup terminal from damage).

Main chassis block

1. **Remove the speaker grille.**
2. **Remove the back lower cabinet cover.**
3. **The main chassis block is secured to the cabinet by screws at front, behind the Speaker Grill and inside on the bottom of the optical frame).**
4. **Remove the horizontal barrier panel at the back of the cabinet.**
5. **Unplug connectors (K1, G1 and speaker connectors) and pull out the main chassis block.**

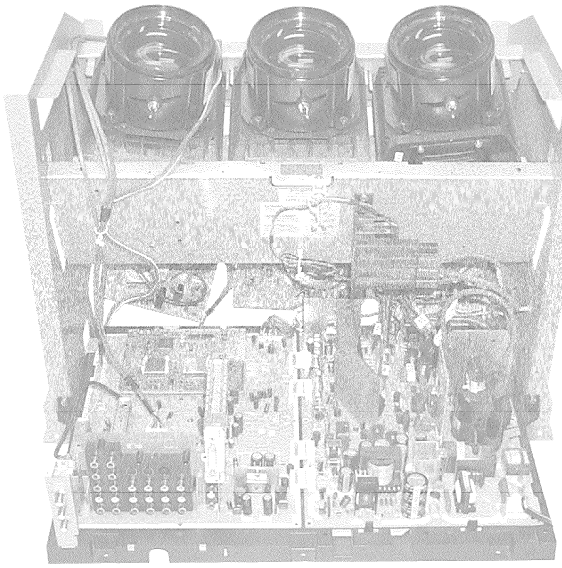
Chassis removal



14.1. Chassis assembly

The chassis assembly shown in figure includes all the electrical and optical (light box) components

Chassis front view



A-Board

1. **A-Board is secured to the chassis tray with five screws.**
2. **The A-Board is mated to the D-Board by four flexible connectors (male side of connectors): A1, A2, A3 & A4. To remove this board, unplug the connectors on the A-Board pulling from the sides of each connector.**

NOTE:

Some tie wraps that secure the wire dressings may need to be unfastened for chassis removal.

D-Board

1. **D-Board is secured to the chassis tray with five screws.**
2. **The D-Board is mated to the A-Board by four connectors (female side of connectors): D1, D2, D3 & D4. To remove this board, unplug the connectors on the A-Board pulling from the sides of each connector.**

NOTE:
Some tie-wraps that secure the wire dressings may need to be unfastened for chassis removal.

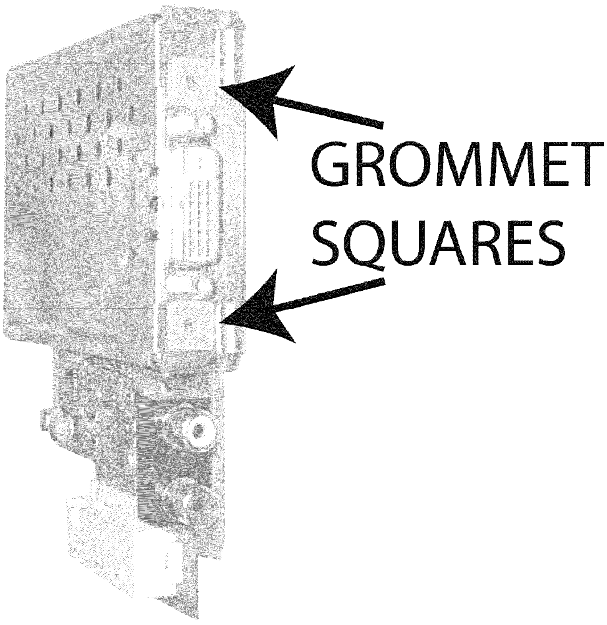
DG-Board

1. **Plugs onto the D-Board at the A16, A17 and A18 (DG1, DG2 and DG3 respectively) connectors.**

NOTE:
This board is non-serviceable. / When removing this board pull carefully.

DV-Board

1. **Plugs onto the A-Board at the A5 (DV1) connectors.**
2. **This board has two Grommet squares, be careful to do not screw too tight, otherwise this grommet screw hole will get stripped.**



NOTE:
This board is non-serviceable. Except for JK002 (DVI AUDIO CONNECTOR) and JK002 (DVI CONNECTOR) / When removing this board pull carefully.

DC-Board

1. Plugs onto the D-Board at the D21, D22 and D23 (DC1, DC2 and DC3 respectively) connectors.

NOTE:
This board is non-serviceable. / When removing this board pull carefully.

R-Board

1. This board is secured to the upper front side of the light box by one screw, and plugged to R1 connector from A51 on A-Board

LR, LG and LB Board

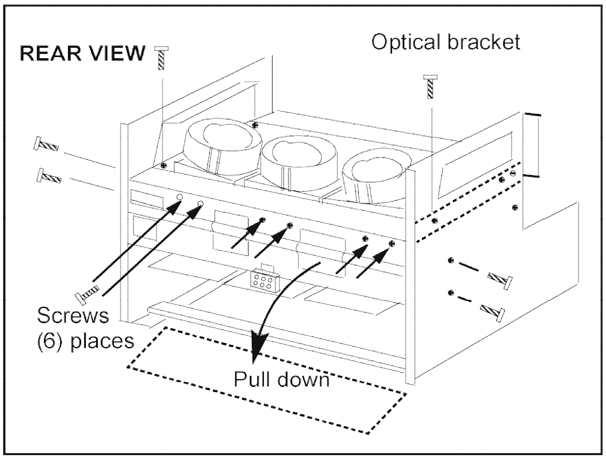
1. Each board is plugged into the socket on the PRT neck, LR-Board on red PRT, LG-Board on green PRT and LB-Board on blue PRT.

14.2. Disassembly for CRT replacement

To facilitate CRT replacement, the complete CRT mounting chassis does not need to be removed.

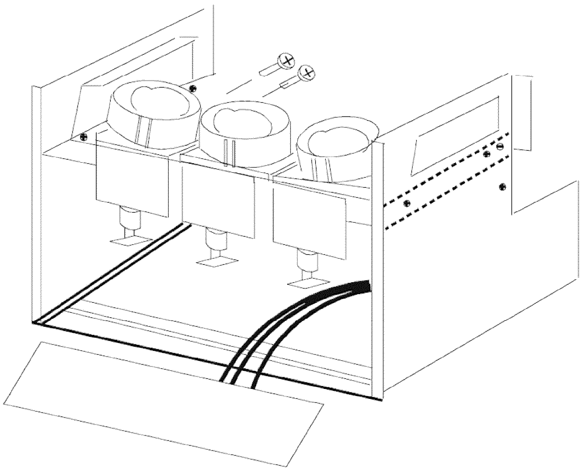
1. **Remove the main chassis block from the cabinet.**
2. **Remove the optical bracket metal cover (rear side) by removing (6) screws from back, (2) screws from top, and (2) screws from each side.**

CRT replacement

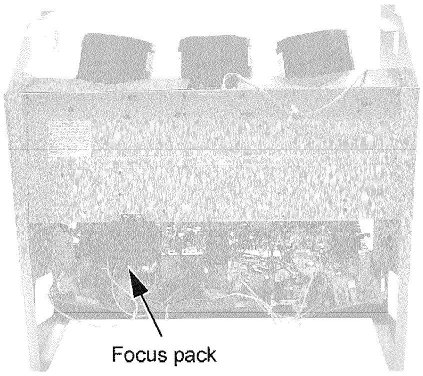


3. **Remove the defective CRT anode lead from the high voltage distributor block that is mounted on the flyback transformer. Discharge to CRT chassis.**
4. **Unplug connectors from the B-Board. See board layout. B9 for red, B10 for green, or B11 for blue**
5. **Unplug the defective CRT black DAG ground connector from the CRT Board.**
6. **Remove the CRT Board from the defective CRT neck.**
7. **Remove (2) screws from the defective CRT housing.**
   Caution:
   Do not remove the (4) CRT lens screws and Support the CRT assembly when loosening screws.

CRT replacement



Focus pack location



8. **Release CRT anode lead from CRT chassis wire clamp and all other wires from holders.**
9. **Loosen a screw that secures the DY and remove it from the CRT neck.**

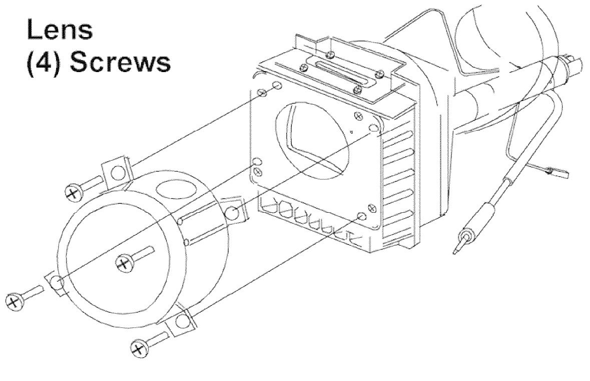
   Caution:

   To insure protection against x ray radiation, the lens must be mounted in place at all times when power is applied to the PTV

CRT replacement

1. **Remove CRT focus lens assembly (4 screws)**

CRT assembly

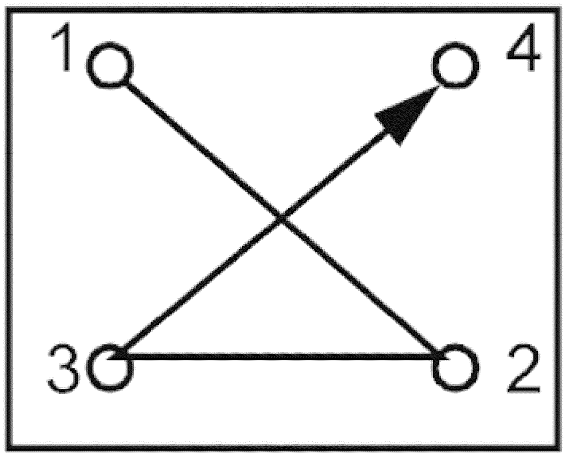


2. **Lay CRT face down on a soft cloth.**
3. **Note position of yoke with centering tabs and remove from defective CRT.**
4. **Remove CRT DAG ground from defective CRT. Mount it on the replacement CRT exactly as it was on the defective CRT.**

Note:
Replacement CRT is supplied with H.V. anode lead attached.

5. **Wire the anode lead wire.**
6. **Install yoke with other CRT neck assemblies on CRT neck in the same order and position as removed from the defective CRT.**
7. **Press yoke against bell of CRT and tighten the clamp just snug enough so it will not easily shift.**
8. **Assemble CRT focus lens assembly to new CRT with (4) screws. Make sure focus lens adjustment nut is in the same location as on other CRT focus lens**

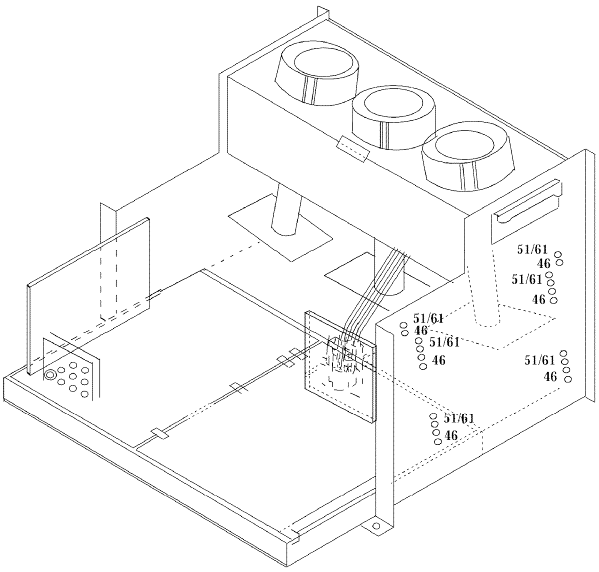
CRT screw tightening order



Note:
Please assemble with screws in the order shown and tighten with the same torque.

Optical block position adjustment

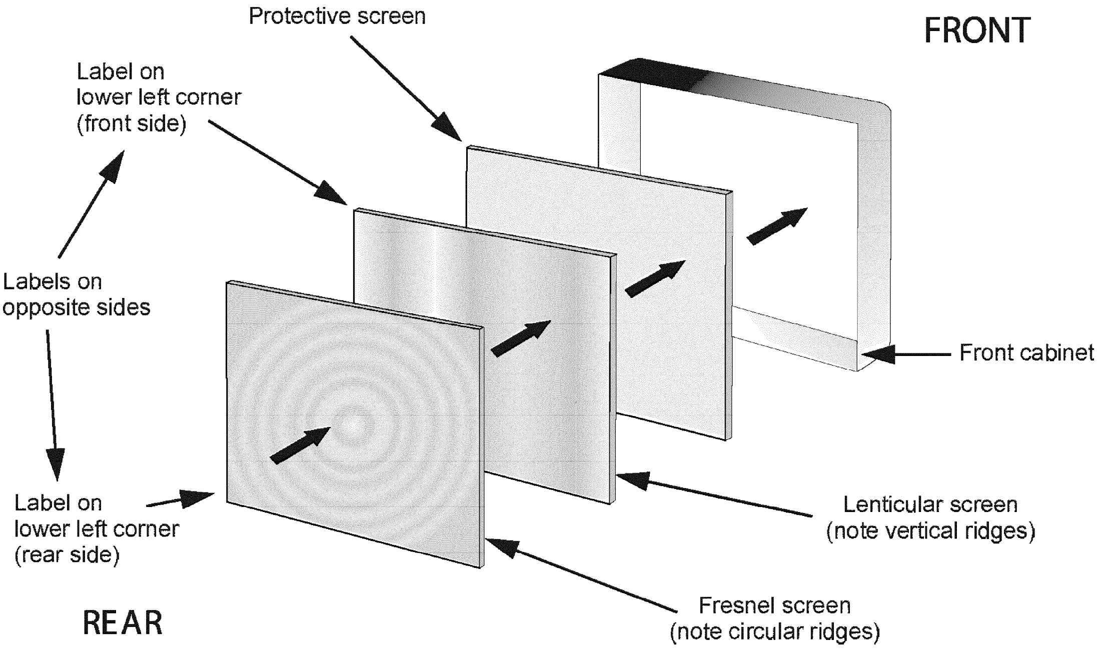
Optical block position


51/61
46
51/61
46
51/61
46
51/61
46
51/61
46
51/61
46

The optical block mounting has holes to allow for the different size projection screens. These mounts will adjust to projection screens. If the optical block is removed for service or is replaced, it is important that the correct mounting holesare used.

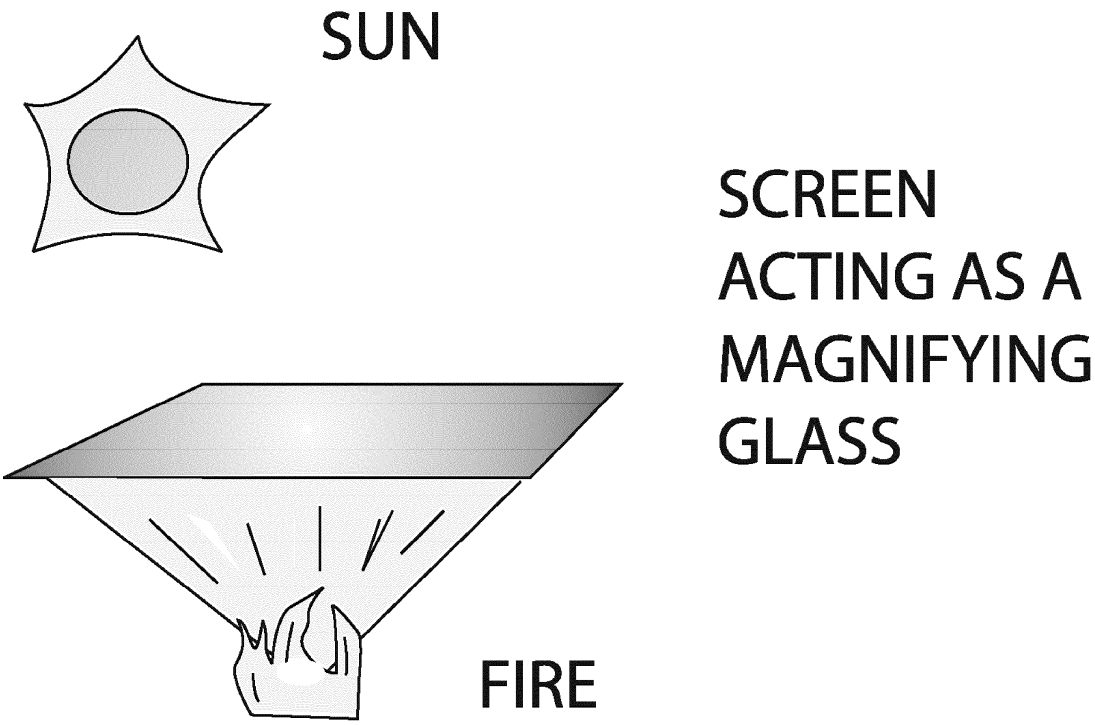
14.3. PTV screen assemblies

Screen assemblies


Protective screen
FRONT
Label on
lower left corner
(front side)
Labels on
opposite sides
Front cabinet
Label on
lower left corner
(rear side)
Lenticular screen
(note vertical ridges)
REAR
Fresnel screen
(note circular ridges)

14.4. Screen assemblies warning

When storing or disposing of screen assemblies, be sure not to place them in direct sunlight. These screens may act as a magnifying glass and could cause a fire.


SUN
SCREEN ACTING AS A MAGNIFYING GLASS
FIRE

15. B+ voltages table

Preparation:

Set the following controls

- **Picture to Normal**
- **Bright to Normal**
- **Volume to MIN (0)**

Procedure:

1. **Apply a NTSC COLOR BAR pattern**
2. **Connect the negative lead of the digital voltmeter to TPGND1 (cold ground).**
3. **Connect the positive lead of the digital voltmeter to each test point and confirm the B+ voltages.**

No.	D-Board Test point	Voltage
1	TPD14	138.6±1.0
2	TPD13	19.0±1.5
3	TPD12	19.0±1.5
4	TPD11	-19.0±1.5
5	TPD10	22.0±1.5
6	C845 (-)	-22.5±1.5
No.	A-Board Test points	Voltage
1	TPA031	9.0±0.5
2	TPA030	5.0±0.5

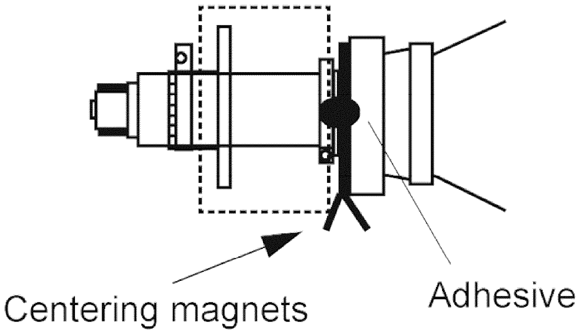
16. CRT Set Up

CAUTION:

Insure yoke plugs on the A Board are reconnected before turning the PTV ON to prevent damage to the horizontal output transistor and/or CRTs.

1. **Connect test generator to the antenna terminal and set for a monoscope pattern.**
2. **Loosen yoke clamp, seat yoke against bell of CRT and rotate to correct yoke tilt (compare to adjacent CRT). Tighten yoke clamp.**
3. **Remove adhesive from centering tabs and set centering tabs for zero correction.**

Adhesive removal



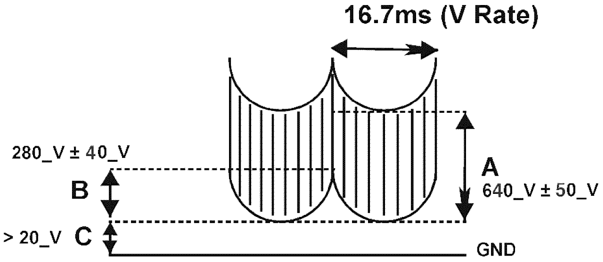
4. **Cover replacement CRT lens and static converge the tubes not replaced, if needed. Check size and linearity of pattern and adjust as required**
5. **Uncover replacement CRT lens and cover other two CRT lenses. Adjust electrical and optical focus (lens), if required.**
6. **Uncover all CRT lenses and use yoke centering magnet to converge replacement CRT (in center area of screen only) with other two CRTs. Disregard of convergence in areas other than center area.**
7. **Perform white balance adjustments.**

16.1. Dynamic focus adjustments

1. **Focus adjustments should be performed after 1 hour of aging.**
2. **Use oscilloscope with 100 : 1 probe.**
3. **Apply a NTSC crosshatch pattern to adjust focus.**
4. **Adjust the red, blue and green focus VR on the focus block for best**

focus of overall picture of each CRT.

D. focus adjustment waveform



5. To change DAF DATA, enter to service mode, then press POWER on remote to display DACs menu, then select DAC by pressing CH (RIGHT/ LEFT) and VOL (UP/DOWN), then press ACTION to enter to DAC, then adjust by pressing VOL (RIGHT/LEFT);press ACTION, to save press ACTION again or OTHER to exit without saving.

Procedure:

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set top box DTV decoder.

1. Enter to service mode and set the following default DATA

	NTSC	NTSC ZOOM	1080i
H-PARA	+170	+170	+170
V-SAW	0	0	0
V-PARA	+14	+14	+16

NOTE:
The signal (NTSC, 1080i and NTSC in ZOOM option), should be applied and displayed to enter values for specific format adjustment.

2. For 1080i set the default values.

3. For NTSC and NTSC ZOOM apply a white pattern and perform the following steps.

4. Connect the scope probe to D33, GND to Q551 heat sink.

5. Confirm that level of A is 640 ± 50_V, adjust / "H-PAR" DAC to set to specification level.

6. Confirm that the voltage level in D33 is similar between point E and F, if not, adjust V-SAW DAC.

7. Confirm that level of B is 280 ± 40_V, adjust / "V-PAR" DAC to set to

specification level.

8. **Confirm that level of C is more than 20 V, adjust / “H-PAR” DAC to set to specification level.**

16.2. Focus - Electrical& optical adjustments

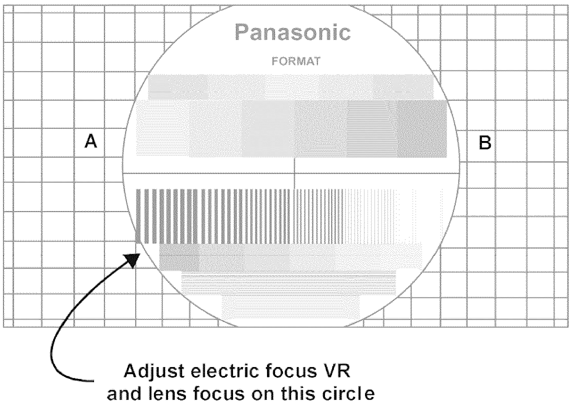
(use for minor adjustment or for final adjustment, for complete adjustment see following section.)

Electrical Adjustment

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. Apply a NTSC crosshatch with dots pattern

Lens focus adjustment

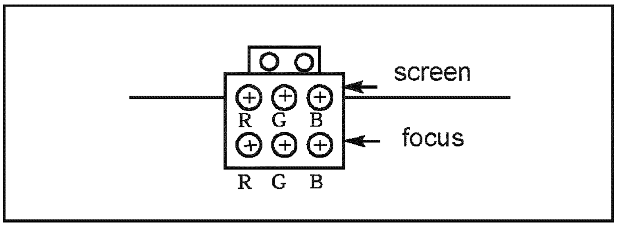


Adjust electric focus VR
and lens focus on this circle

	RED	GREEN	BLUE
Electric focus	B	A/B	A
Optical Focus	B	A/B	A

2. Set VIDEO “C_OFF” DAC from 00 to 02, and project only red. Adjust red focus VR so that focus is best

Focus pack



3. **Adjust red lens focus (mechanical) until focus is best.**
4. **Adjust red focus VR again.**
5. **Set VIDEO “C_OFF” DAC from 00 to 01, and project only green.**

6. **Repeat steps for green only.**
7. **Set VIDEO "C_OFF" DAC from 00 to 03, and project only blue.**
8. **Repeat steps for blue only.**

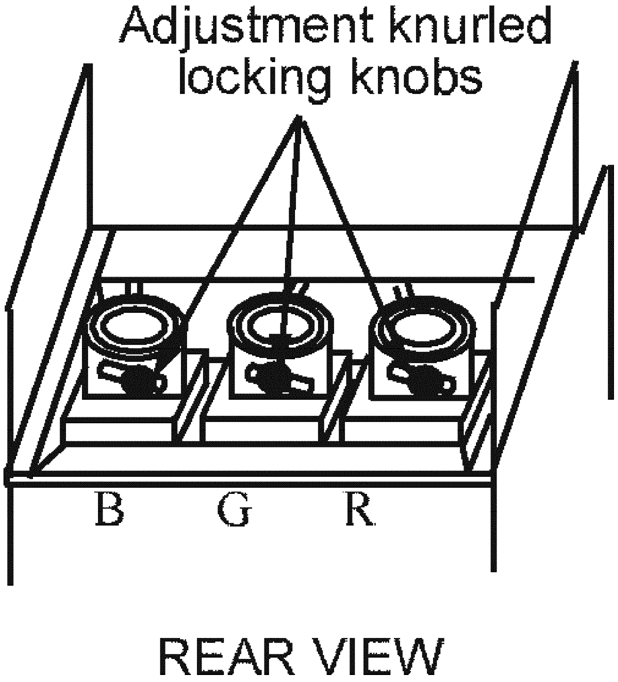
16.2.1. Focus - Optical lens adjustment

Optical adjustments

NOTE:
This adjustment normally should not require resetting unless the lens has been replaced or adjustment has changed.

1. **Optical focus adjustment is located on the top of each CRT lens system. Loosen the adjustment knurled locking knob.**

Optical lens focus adjustment



2. **Turn the PTV ON. Apply and view a crosshatch with dots pattern.**
3. **Adjust each lens focus for best focus while viewing each CRT.**
4. **Cover the red and blue CRT, projecting green only. Rotate the green lens for best focus around screen center area.**
5. **Do the same for the red focus lens while projecting red only.**
6. **Repeat for blue.**
7. **Align VM coils.**

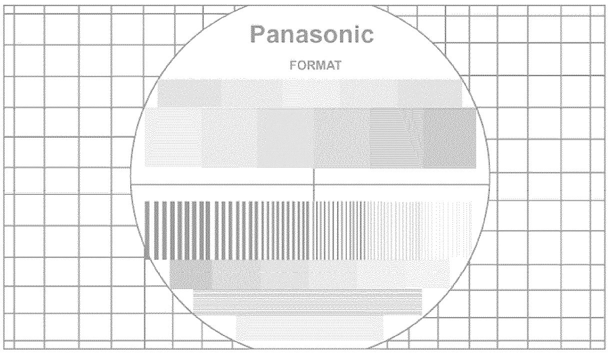
17. Electronic Adjustments

17.1. NTSC Horizontal phase adjustment (H POS)

This adjustment is intended to correct the horizontal position of the picture

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. **Apply a NTSC pattern that lets adjust the image to correct vertical size (see above note).**
2. **Set VIDEO “C_OFF” DAC from 00 to 01 (to project only green).**
3. **Set DAC MUTE from 00 to 01 (disabling digital convergence).**
4. **Turn green deflection yoke until line is perfectly horizontal.**
5. **Adjust “H POS” DAC data so that pattern is in the center of screen**
6. **Enable digital convergence by changing DAC MUTE from 01 to 00.**
7. **Set VIDEO “C_OFF” DAC from 01 to 00**

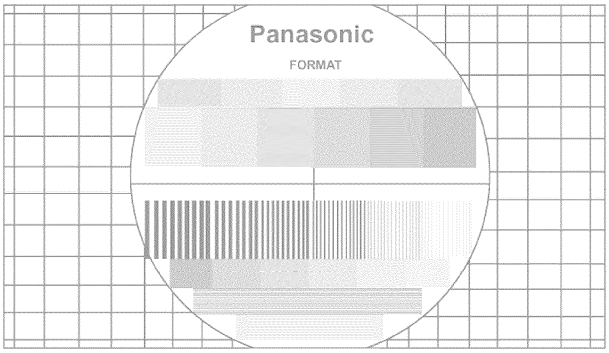


17.2. HD 1080i Horizontal phase adjustment (H POS)

This adjustment is intended to correct the horizontal position of the picture for HD 1080i mode.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. **Apply a HD 1080i pattern (see above note).**
2. **Repeat NTSC horizontal phase adjustment from step 2**



17.3. Centering magnets adjustment

NOTE:

1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

Procedures:

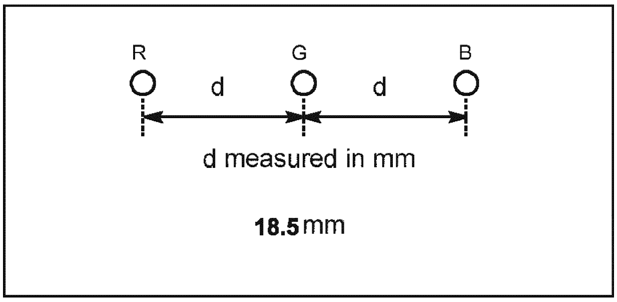
1. **Apply a NTSC crosshatch pattern with dots.**
2. **Set VIDEO "C_OFF" DAC from 00 to 01 to project only green.**
3. **Set DAC MUTE from 00 to 01 (disabling digital convergence).**
4. **Loosen the deflection coil screw on the green CRT.**
5. **Adjust green deflection coil until the horizontal center line is horizontal.**
6. **Adjust centering magnets until the green pattern is equal on left and right. Adjust also for horizontal and vertical tilt.**

NOTE:

Push deflection coil to top of CRT neck, then tighten deflection screw after adjusting each CRT centering and tilt.

7. **Set VIDEO "C_OFF" DAC from 01 to 03 to project only blue. Adjust deflection coil until the horizontal center line matches the pattern of the grid and is leveled.**
8. **Adjust blue centering magnets until the pattern center is at the appropriate distance as indicated on the following figure.**

Centering magnets adjustment



9. Set VIDEO “C_OFF” DAC from 01 to 02 to project only red.
10. Adjust red deflection coil until the horizontal center line matches the pattern of the grid and is leveled.
11. Adjust red centering magnets until the pattern center is at the appropriate distance as indicated on figure.
12. Enable digital convergence by changing DAC MUTE from 01 to 00.
13. Set VIDEO “C_OFF” DAC from 02 to 00. Following the adjustment, make sure that all deflection coils are pushed completely toward the CRT cones and that all screws are tightened.

17.4. NTSC Vertical linearity adjustment (V-C and V-S)

This adjustment is intended to make the picture vertically proportional (top, center and bottom) for NTSC mode

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. Apply a NTSC pattern that lets adjust the image to correct vertical linearity (see above note).
2. Set VIDEO “C_OFF” DAC from 00 to 01 (to project only green).
3. Set DAC MUTE from 00 to 01 (disabling digital convergence).
4. Adjust centering magnets so that the center of the pattern get aligned with screen frame center.
5. Adjust VDEF “V-C” and “V-S” DAC until vertical size is proportional on top and bottom. Confirm to correct linearity in the middle of the screen.
6. Set DAC MUTE from 01 to 00 (disabling digital convergence).
7. Set VIDEO “C_OFF” DAC from 01 to 00

17.5. HD 1080i Vertical linearity adjustment (V-C and V-S)

This adjustment is intended to make the picture vertically proportional (top, center and bottom) for HD 1080i mode

NOTE:

1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. **Apply a NTSC pattern that lets adjust the image to correct vertical linearity (see above note).**
2. **Repeat NTSC vertical linearity adjustment from step 2**

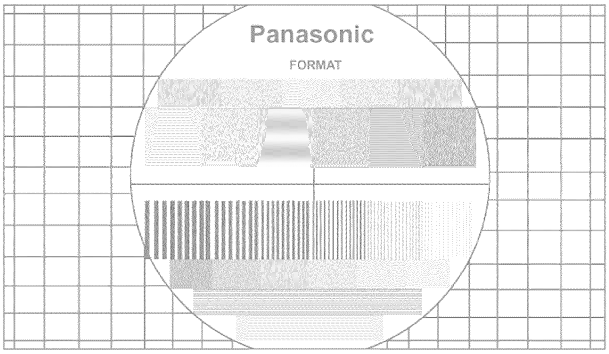
17.6. NTSC Vertical size adjustment (V-AMP)

This adjustment is intended to correct the vertical size of the picture for NTSC mode

NOTE:

1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. **Apply a NTSC pattern that lets adjust the image to correct vertical size (see above note).**
2. **Set VIDEO "C_OFF" DAC from 00 to 01 (to project only green).**
3. **Set DAC MUTE from 00 to 01 (disabling digital convergence).**
4. **Adjust centering magnets so that the center of the pattern get aligned with screen frame center.**
5. **Adjust VDEF "V-AMP" DAC until vertical size is proportional on top and bottom.**
6. **Set DAC MUTE from 01 to 00 (disabling digital convergence).**
7. **Set VIDEO "C_OFF" DAC from 01 to 00**



17.7. HD 1080i Vertical size adjustment (V AMP)

This adjustment is intended to correct the vertical size of the picture for HD 1080i mode.

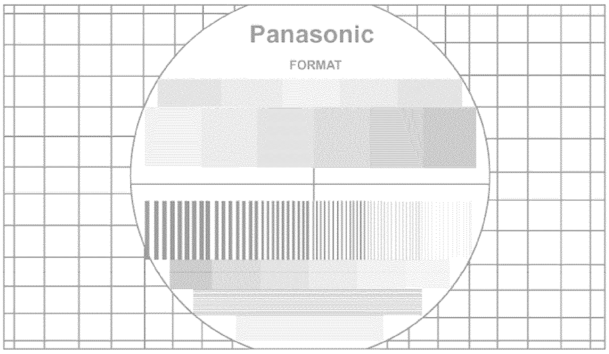
NOTE:

1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set top box DTV decoder.

1. **Apply a HD 1080i pattern that lets adjust the image to correct vertical**

size (see above note).

2. Repeat NTSC vertical size adjustment from step 2

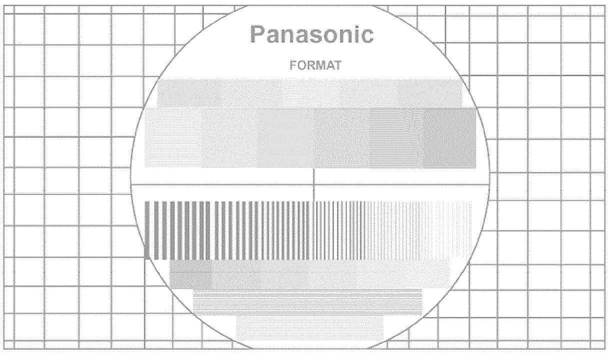


17.8. NTSC ZOOM Vertical size adjustment (V AMP)

This adjustment is intended to correct the vertical size of the picture for NTSC ZOOM mode

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set top box DTV decoder.

1. Apply a NTSC pattern that lets adjust the image to correct vertical size (see above note)
2. Change aspect to ZOOM mode.
3. Repeat NTSC vertical size adjustment from step 2
4. Try making circle seem rounded (in proportion)



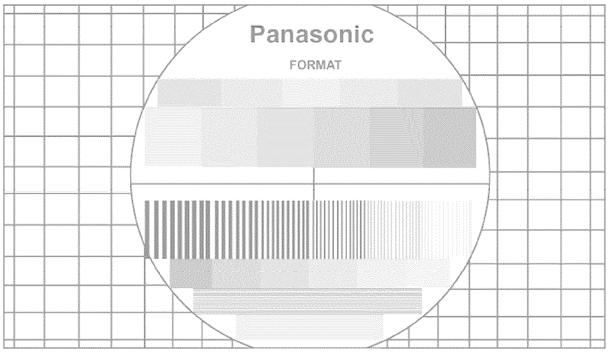
17.9. NTSC Horizontal size adjustment / (H_POS)

This adjustment is intended to correct the horizontal position of the picture for NTSC mode

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. Apply a NTSC pattern that lets adjust the image to correct horizontal position (see above note)
2. Set VIDEO "C_OFF" DAC from 00 to 01 to project only green.

3. Set DAC “MUTE” from 00 to 01 (disabling digital convergence).
4. Turn green deflection yoke until line is perfectly horizontal.
5. Adjust “H WID” DAC data so that pattern has the correct horizontal size.



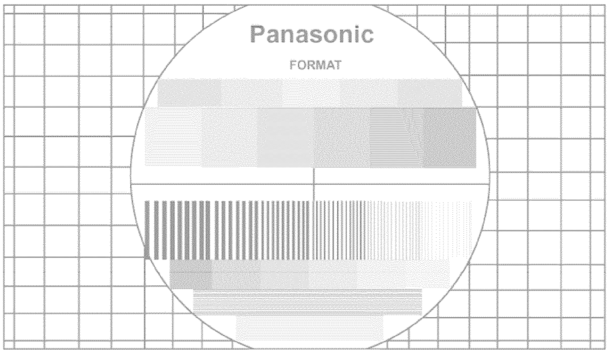
6. Set DAC MUTE from 00 to 01 (disabling digital convergence).
7. Set VIDEO “C_OFF” DAC from 01 to 00.

17.10. HD 1080i Horizontal size adjustment (H_POS)

This adjustment is intended to correct the horizontal position of the picture for NTSC mode

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. Apply a HD 1080i pattern that lets adjust the image to correct horizontal position of the image.
2. Repeat NTSC horizontal size adjustment from step 2



17.11. Trapezoid adjustment (TRAP)

1. Set default value

17.12. NTSC Pincushion adjustment (PCC)

This adjustment is intended to correct curved sides of the picture for NTSC mode.

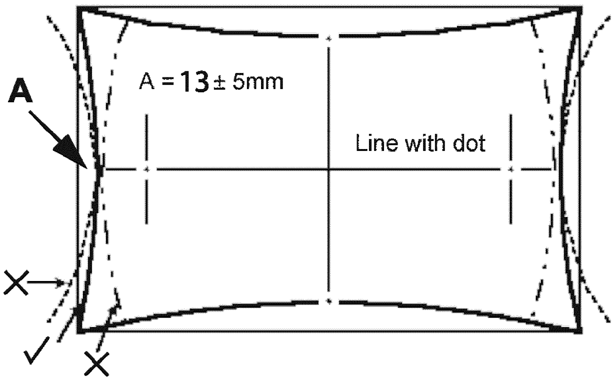
NOTE:

1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

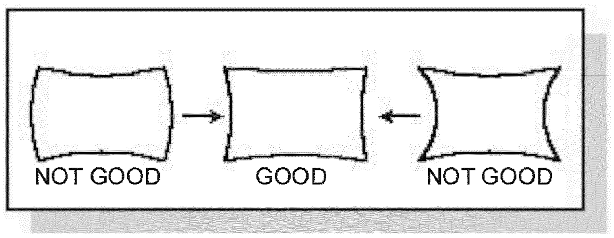
Procedure:

1. **Apply a NTSC pattern that lets adjust the image to correct curved sides (see above note)**
2. **Set VIDEO "C_OFF" DAC from 00 to 01 to project only green.**
3. **Set DAC "MUTE" from 00 to 01 (disabling digital convergence)**
4. **If the distance at "A" is not 13 ± 5mm, enter H DEF "H WID" DAC and adjust by VOLUME UP/DOWN until it is 13 ± 5mm.**

Pincushion adjustment



Pincushion



5. **If not all corners of cross hatch appear in screen, enter V DEF "V-AMP" DAC and adjust until they appear.**
6. **Confirm that measurement of "A" has not changed.**
7. **Enable digital convergence by changing DAC MUTE from 01 to 00.**
8. **Set VIDEO "C_OFF" DAC from 01 to 00.**

17.13. HD 1080i Pincushion adjustment (PCC)

This adjustment is intended to correct curved sides of the picture for HD 1080i mode.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

Procedure:

1. **Apply a HD 1080i pattern that lets adjust the image to correct curved**

sides (see above note).

2. Repeat NTSC pincushion adjustment from step 2

17.14. NTSC Horizontal size adjustment (H WID)

This adjustment is intended to adjust horizontal size of the picture for NTSC mode.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

1. Apply a NTSC pattern that lets adjust the horizontal size.
2. Set VIDEO "C_OFF" DAC from 00 to 01 to project only green.
3. Set DAC "MUTE" from 00 to 01 (disabling digital convergence).
4. In service mode, adjust "H WID" DAC until the picture horizontal size is balanced at left and right side of screen.
5. Set DAC "MUTE" from 01 to 00 (disabling digital convergence).
6. Set VIDEO "C_OFF" DAC from 01 to 00.

17.15. HD 1080i Horizontal size adjustment / (H WID)

This adjustment is intended to adjust horizontal size of the picture.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder

1. Apply a HD 1080i pattern that lets adjust the horizontal size.
2. Repeat NTSC horizontal size adjustment from / step 2.

17.16. NTSC and HD 1080i Sub-Bright adjustment (BRIGH) and ABL check

This adjustment is intended to set 7 IRE signal to black level mode.

Procedure:

1. Set PICTURE MODE TO VIVID, PICTURE settings to normal, NATURAL COLOR to OFF and COLOR TEMPERATURE to NORMAL.
2. Connect meter (positive lead) to D31 pin 2 and (negative lead) to D31 pin 1.
3. Apply a NTSC color bar with no color or if available a grey levels pattern.
4. Adjust DAC "BRIGH" data so that bar near to black bar becomes near black
5. Apply an HD 1080i signal and repeat this adjustment for HD 1080i mode

6. To check ABL apply a white pattern and put user bright control to max. and confirm that reading on meter is 12.4 ± 0.8_V.

17.17. Red, green& blue screen Cut-Off

1. Use either a no input signal condition or raster from the NTSC generator.

2. Observing the green tube directly or via a reflective surface, adjust the VR on focus pack for the green tube for minimum noise.

3. Adjust the noise level in the red and blue tubes to match the noise level in the green tube.

17.18. White balance adjustment

NOTE:
1080i, 480p, 480I pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

Prior to this adjustment, perform sub-contrast adjustment. This adjustment requires that the service use skills in observing what a screen without color should look like (white picture).

Preparation:

1. Set the following in the user picture menu as follows:

- **PIC MODE to VIVID**
- **COLOR to center (31)**
- **PICTURE to max (63)**
- **BRIGHT to center (31)**
- **SHARPNESS to min. (0)**
- **TINT to center (31)**
- **NATURAL COLOR to OFF**
- **COLOR TEMPERATURE to COOL**

1. Enter the service mode.

2. Apply a NTSC black and white pattern to one of the video inputs (see above note) color bar with no color.

17.18.1. High light white balance adjustment

1. Adjust DAC R_DR for red and B_DR for blue adjustments.

2. Make sure the screen is not blue or green. The screen should be white

in the white area.

3. **Check the black and white area for a black and white picture with even shades of gray and no color tint in the picture.**

17.18.2. Low light white balance adjustment

1. **Adjust DAC CUT_R for red and DAC CUT_B for blue.**
2. **Check the screen for even white in all areas, no color.**
3. **Check the black and white pattern for a black and white picture, even shades of gray and no color tint in the low light areas.**
4. **Repeat the high light and low light white balance again until the white balance tracks from high light to low light.**

17.19. NTSC Color adjustment (TINT, B-Y_G, R-Y_A)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

This adjustment requires that the servicer use its skills in observing what a colorbar pattern should looks like.

Preparation:

1. **Set the following in the user picture menu as follows:**
    - **PIC MODE to VIVID**
    - **COLOR to center (31)**
    - **PICTURE to max (63)**
    - **BRIGHT to center (31)**
    - **SHARPNESS to min. (0)**
    - **TINT to center (31)**
    - **NATURAL COLOR to OFF**
    - **COLOR TEMPERATURE to COOL**

Procedure:

1. **Apply a NTSC color bar pattern**
2. **Adjust DAC "TINT" so that the fourth bar from right to left becomes purple and good color balance.**
3. **If the adjustment is high, the bar will look pinkish, if it is low will look bluish.**

4. **Adjust “B-Y_G” so blue look natural, and the rest of the colors become in balance.**
5. **Adjust “R-Y_A” so red look natural, and rest of the colors become in balance.**
6. **Check that white bar is real white, no bluish or reddish or tending to become grey.**

17.20. 1080i Color adjustment (TINT, B-Y_G, R-Y_A)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

1. **Set same settings as NTSC adjustment**
2. **Apply a 1080i signal, and repeat adjustments as from step 2 in NTSC adjustment.**
3. **If pattern is not available, use a color signal in 1080i and adapt the adjustment to that available signal.**

17.21. Tint and color check

Set picture mode to VIVID mode. Again, the service ability to see color and the balance of color is important for theses adjustments.

Tint check

1. **In picture menu set PICTURE NORM to YES.**
2. **Apply color bars to the video input.**
3. **Magenta is composed of two colors, blue and red.**
4. **Check to see that magenta does not have too much blue or too much red.**
5. **Check cyan. Cyan is composed of blue and green. It should not have too much blue or green.**
6. **Use a test signal from a VCR or laser disk that has a pre-recorded close up of a signal that has good flesh tones.**
7. **The signal on the VCR or laser disk should look normal.**

Color Check

Using a clean RF or video signal, set the color level so that it does not saturate or appear harsh. Make

sure that color is not set so that it appears dull and washed out. Look for natural colors, try to adjust the picture to appear as a normalphotograph.

17.22. MTS circuit adjustment

Note:
It is important to adjust the MTS circuit in the order shown below.
The MTS circuit adjustment require two steps:

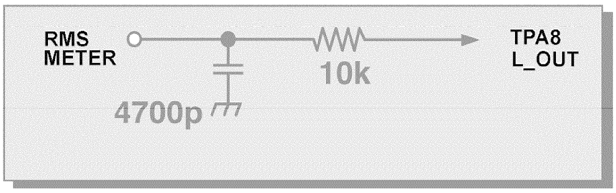
1. **Input level adjustment.**
2. **Stereo separation adjustment.**

Input level adjustment (MTSIN)

Preparation:

1. **Connect an RMS meter (A.C. range) with filter jig as shown**

Filter jig



2. **Connect an RF signal generator to the RF antenna input.**

Procedure:

1. **Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 300Hz, 100% modulation, monaural (70 ± 5dB, 75 Ω open, P/S 10dB).Make sure to turn off 75 μ s pre-emphasis.**
2. **Adjust DAC “MTSIN” MTS-INPUT data until the voltage measured is 106 ± 6.0mV RMS.**

Stereo separation adjustment (SEPAL & SEPAH)

Preparation:

1. **Connect an RF signal generator to the RF antenna input.**
2. **Connect an oscilloscope probe to TPA7 (R_out).**

Procedure:

1. Set PTV to Stereo Mode (in the audio menu).
2. Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 300Hz, 30% modulation, stereo (left only) (70dB ± 5dB, 75 Ω OPEN, P/S 10dB).

Note:
Set the 30% modulation with the pilot light SW and N.R. switches OFF then turn them ON while testing.

3. Adjust MTS low□level separation “SEPAL” DAC data (in the service menu) until the amplitude of the measured waveform on the scope is minimum.
4. Apply the following signal from the RF signal generator: / Video: 100 IRE flat field, 30% modulation. / Audio: 3KHz, 30% modulation, stereo (left only). / (70dB ± 5dB, 75 Ω OPEN, P/S10dB).

Note:
Set the 30% modulation with the P.L and N.R. switches OFF then turn them ON while testing.

5. Adjust MTS High□Level Separation “SEPAH” DAC data until the amplitude of the waveform measured on the scope is minimum.
6. Repeat above steps 2 through 5 until the amplitude is at minimum for both signals.

17.23. Clock Adjustment (CLOCK)

Preparation:
Connect the frequency counter from TPA9 (A-Board) to cold ground.

Note:
Frequency Counter probe capacitance should be 8pF or less.

Procedure:

1. Turn the PTV “ON” with the A.C. power applied.
2. Measure TPA9 for frequency and record the reading.

Note:
Pin 10 measurement must have at least four digits of resolution following the decimal point. Example: 000.0000

3. Place the PTV into service mode for making electronic adjustment, select the clock adjustment DAC CLOCK and change value to 128.

4. Calculate and set CLOCK based on the following formula:

$$\boxed{CLOCK = 128 + 0.450 x 106 x \frac{\{732.422 - TPA9[\mathrm{Hz}]\}}{732.4220}}$$

Note:
TPA9 measurement will not change regardless of the value stored in CLOCK.

18. Convergence adjustment

Turn PTV on and allow it to warm up for 30 minutes prior to perform adjustments (apply a WHITE PATTERN).

Helpful Hint:
EEPROM jig can be used to adjust convergence, by copying convergence adjustment from a convergence adjusted PTV to other. Refer to EEPROM copy jig section on this service manual. Also EEPROM copy jig can be used to back-up the data before to performadjustments.

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

IMPORTANT NOTICE:
It is strongly recommended to first read and understand the following section prior to make any adjustment. / Convergence adjustment must be perform for 480i-p (same for interlace & progressive), ZOOM 480i and 1080i.

This PTV uses the scheme described below to correct for misconvergence of the three CRT projection tubes. There are various modes to this operation.

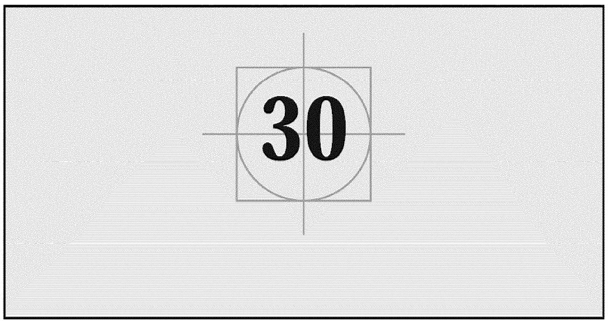
Preparation:
Place the convergence alignment template (see Convergence alignment template section on this manual) over the PTV screen. Align the center lines of the template with the mechanical center markers on the PTV screen frame. If the template is not available,create one using the dimensions provided in Convergence alignment template section on this manual.Remote control must be used during the procedure.

Procedure:
Apply the convergence alignment template to the PTV screen frame to converge the green raster only. Remove the convergence alignment template following this alignment. The red and blue rasters can then be aligned to the green raster.

Raster Set-Up:

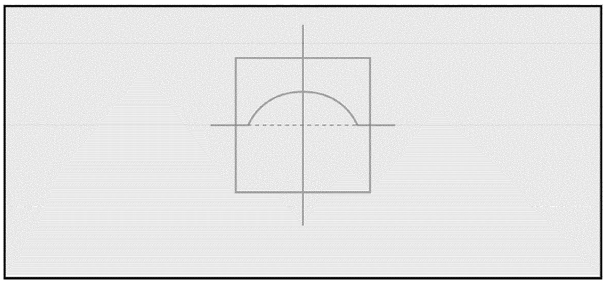
1. **Enter to service mode (red CHK).**
2. **In SET-UP (menu) CONVERGENCE 1 set all values to 0.**
3. **Cover red & blue lens with caps.**
4. **Apply a pattern to adjust specific format:**
    - **NTSC signal to adjust 480i & 480p (same for interlace and progressive).**
    - **480i signal with PTV in ZOOM aspect to adjust Z480i.**
    - **1080i signal to adjust 1080i.**
5. **Select "COARSE" DAC, then press ACTION to enter to "COARSE CONVERGENCE ADJ" mode.**
6. **Press "0" key on remote.**
7. **Press ACTION key on remote to enter to "TEST_POS" mode.**
8. **Move pattern by pressing VOL right - left and CH up - down so that the cursor center overlap monoscope pattern center.**

Aligned cross-hair pattern with center of picture pattern



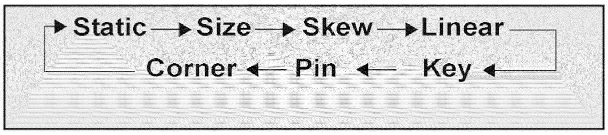
9. **Press "5" key on remote to exit superimpose mode (monoscope pattern disappear).**
10. **Press "TV/VIDEO" key to enter "DATA_POS" mode**
11. **Adjust by pressing VOL right - left so that peak of curve is the same position as center of cursor**

Symmetrical shape



12. Press “TV/VIDEO” key on remote to enter “OSD_POS” mode.
13. Press “5” key on remote so that monoscope pattern appears (superimpose mode)
14. Move cursor by pressing VOL right - left and CH up - down so that cursor center overlap monoscope pattern center
15. Press “0” key to go back to “CONVERGENCE ADJ” mode.
16. Press “TV/VIDEO” key to cycle through “COARSE ADJ. MODE” options

“COARSE” modes cycle



17. To change to “FINE ADJUSTMENT MODE” options (“FINE” DAC), press “TV/VIDEO” key on remote for at least 3 seconds, to go back to “COARSE ADJ MODE” options press “TV/VIDEO” onremote again for 3 seconds.
18. In “FINE ADJUSTMENT MODE” options, press “MUTE” key on remote to switch between “cursor” mode and “data” mode.
    - Cursor mode: Allows cursor movement by pressing VOL right - left and CH up - down.
    - Data mode: Allows making adjustment by pressing VOL right - left and CH up - down.
19. Either “COARSE ADJUSTMENT MODE” options or “FINE ADJUSTMENT MODE” options, press “R-TUNE” repeatedly key on remote to cycle through different color adjustments (R, G, B, White)
20. In “FINE ADJUSTMENT MODE” options, press “4” key on remote to ADD crossed sections to pattern and make effect visible between crossed sections.
21. To store adjustments press “7”, then “ACTION” key on remote,

otherwise press “POWER” then “ACTION” to exit adjustments without saving.

22. Remote functions, PRESS:

PRESS BUTTON	TO
1(forward) or 3(back)	change viewed color
2	change pattern
4 (only FINE mode)	change crossed sections
5	overlap
* 7	save data
8	copy from
9	clear
POWER	exit
RECALL	display values
R-TUNE	cycle colors
TV/VIDEO	change mode
TV/VIDEO (3 secs)	switch convergence mode (FINE/ COARSE)

*

When “7” is pressed and the data is saved, it will overwrite the factory default.

18.1. Coarse adjustment mode (COARSE)

NOTE:
1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

NOTE:
It is strongly recommended to first read and understand the following section prior to make any adjustment. / Convergence adjustment must be performed for 480i_p (same for interlace & progressive), ZOOM 480i and 1080i.

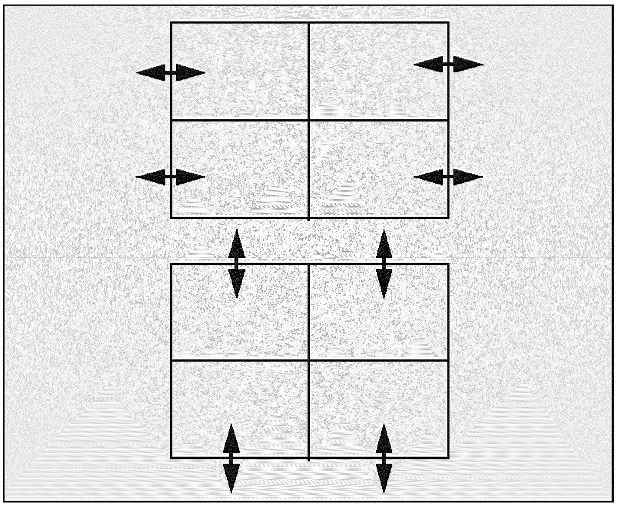
Procedure:

1. Enter to “G-SIZE” mode:

- Select “COARSE” DAC
- Press ACTION on remote
- TV/VIDEO (repeatedly)
- R-TUNE (repeatedly)

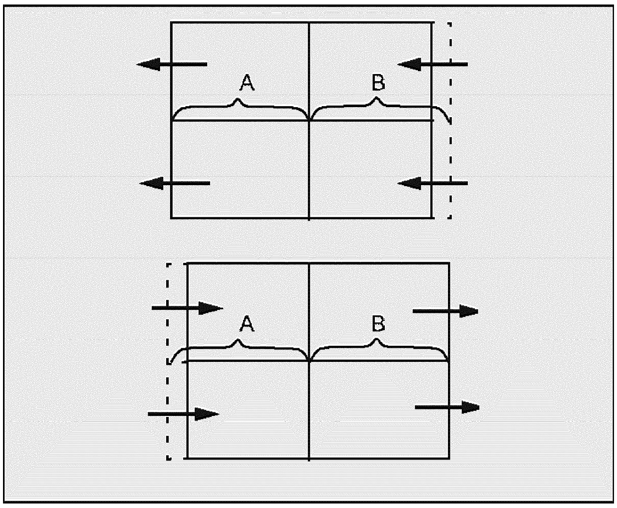
2. Press “2” repeatedly and apply the pattern of border and cross.
3. Press RECALL to display values
4. Adjust size so that the line of the border closes to the screen frame at top, bottom, left and right, by pressing CH up-down and VOL right-left

“SIZE” mode adjustment



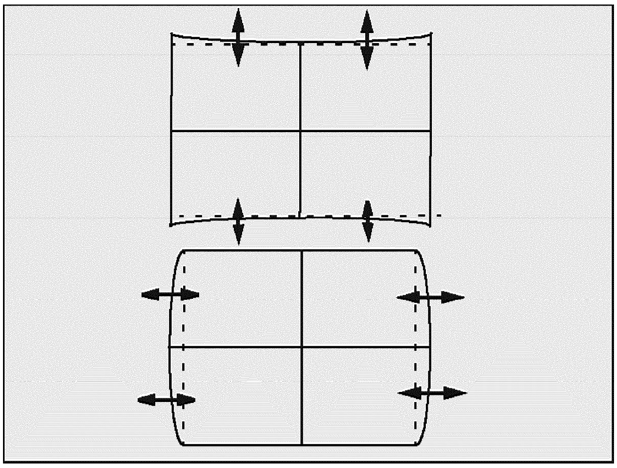
5. Press “7” then “ACTION” key on remote to save changes.
6. Enter to linearity “G-LINEAR” mode by pressing “TV/VIDEO”.
7. Adjust linearity by pressing VOL right-left until A=B.

“LINEAR” mode adjustment



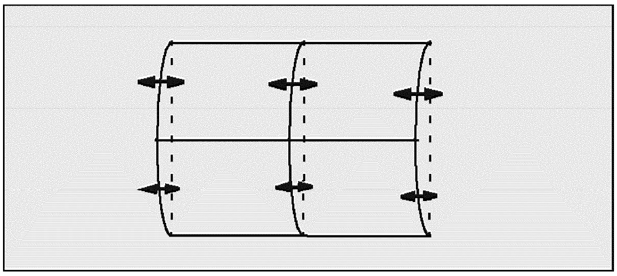
8. Press “7” then “ACTION” key on remote to save changes.
9. Enter to PIN “G-PIN” mode by pressing “TV/VIDEO”
10. Adjust V_PIN by pressing CH up-down (see figure)
11. Adjust H_PIN by pressing VOL right-left.
12. Press “7” then “ACTION” key on remote to save changes

"PIN" mode adjustment



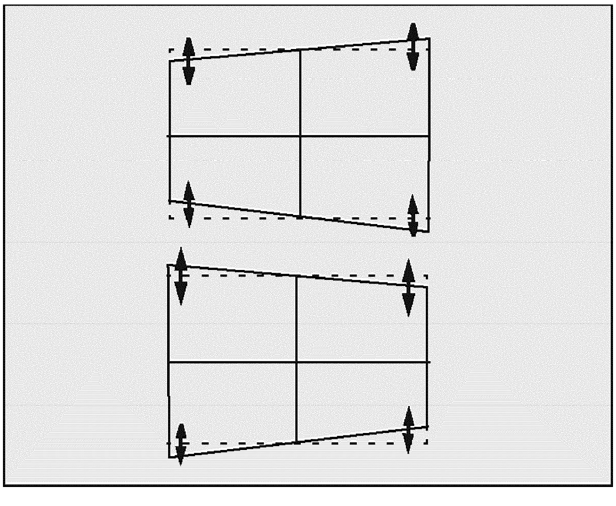
13. Press "7" then "ACTION" key on remote to save changes
14. Adjust by pressing VOL right-left (see figure)
15. Press "7" then "ACTION" key on remote to save changes

"CORNER" mode adjustment



16. Enter to KEY "G-KEY" mode by pressing TV/VIDEO.
17. Adjust by pressing CH up-down (see figure)
18. Press "7" then "ACTION" key on remote to save changes

"KEY" mode adjustment



NOTE:
Confirm that pattern looks like a square and almost overlaps the screen frame, check that vertical and

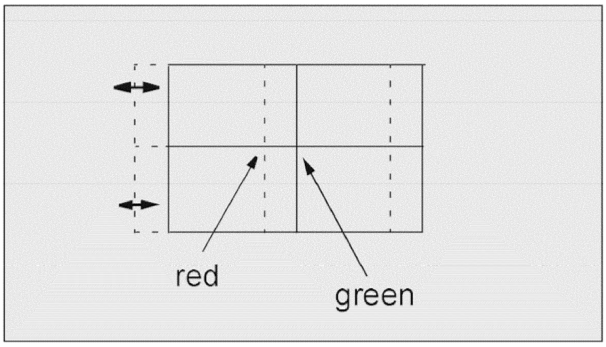
horizontal line center match with the marks on screen frame, if linearity is not good enough, repeat adjustments.

19. Enter to "STATIC" mode by pressing TV/VIDEO.

20. Press "1" or "3" repeatedly until green and red only are shown.

21. Adjust "R-STATIC" so that the center of red overlaps with the center of green

"STATIC" mode adjustment

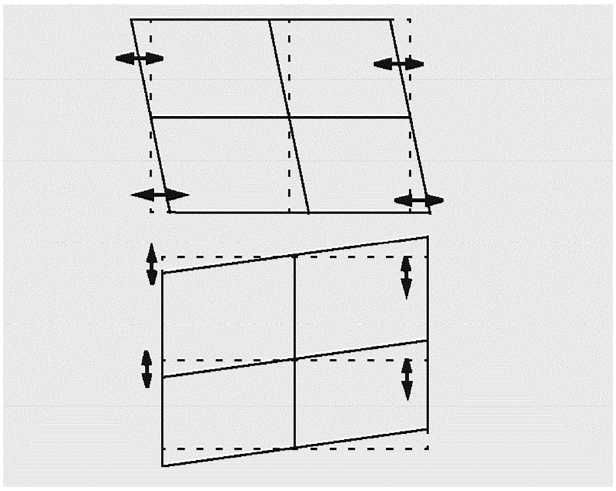


22. Enter to SKEW "R-SKEW" mode by pressing TV/VIDEO

23. Adjust "R-SKEW" so that the vertical and horizontal line of center overlaps with green (see figure)

24. Press "7" then "ACTION" key on remote to save changes

"SKEW" mode adjustment



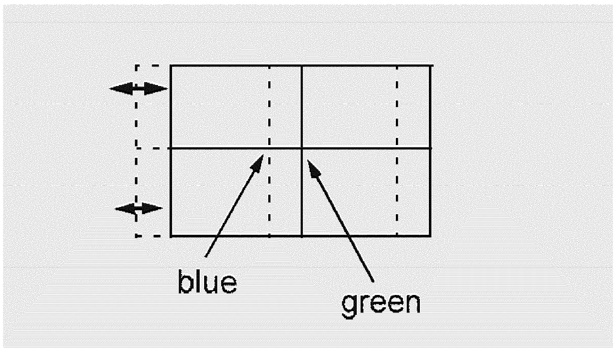
NOTE:
Remember always save data following each adjustment by pressing "7" key on remote, then ACTION.

25. Enter to LINEARITY "R-LINEAR" mode by pressing TV/VIDEO.

26. Adjust Horizontal linearity (see figure)

27. Enter to SIZE “R-SIZE” mode by pressing TV/VIDEO
28. Adjust so that the line on the border closes to the screen frame at top, bottom, left and right (see figure)
29. Enter to PIN “R-PIN” mode by pressing TV/VIDEO
30. Adjust horizontally and vertically (see figure)
31. Enter to CORNER “R-CORNER” mode by pressing TV/VIDEO.
32. Adjust corners (see figure)
33. Enter to KEY “R-KEY” mode by pressing TV/VIDEO
34. Adjust KEY (see figure)
35. Display pattern of border and cross, then check that red overlaps green pattern, if it is not satisfactory, repeat from step 19.
36. Enter to STATIC “B-STATIC” mode.
37. Press “1 or 3” key repeatedly on remote until only green and blue pattern are displayed
38. Adjust B-STATIC so that the center of blue overlaps with the center of green (see figure)

“B-STATIC” mode adjustment



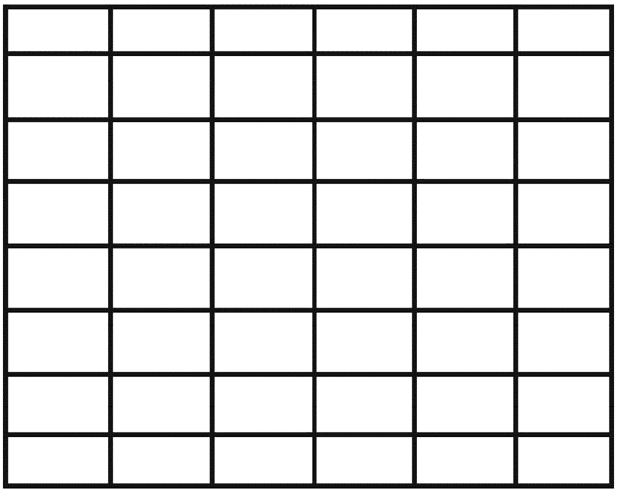
39. Perform all adjustments for blue (B-SKEW, B-LINEAR, B-SIZE, B-PIN, B-CORNER, B-KEY)
40. Display border and cross pattern and confirm that blue overlaps with green pattern, if it is not satisfactory, repeat for blue.
41. Press “1 or 3” key repeatedly on remote until green, red and blue (white), confirm that red and blue overlaps with green pattern.
42. Press “7” key on remote, then ACTION to save changes.
43. Press POWER then ACTION to exit adjustments or press TV/VIDEO for at least 3 seconds to change to Fine Adjustment Mode.

18.2. Fine adjustment mode (FINE) (convergence)

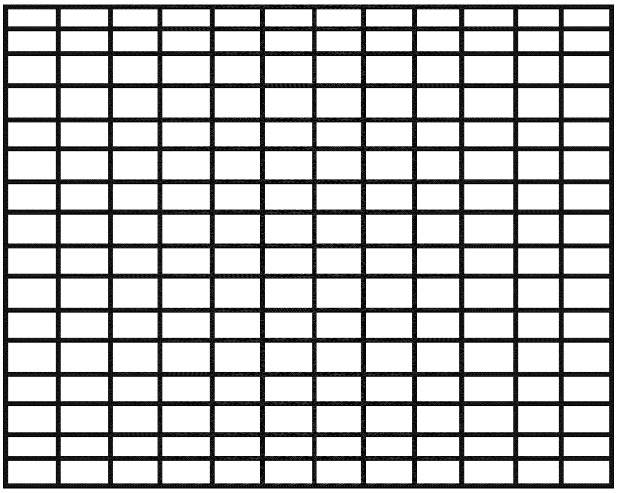
NOTE:
It is strongly recommended to first read and understand the following section prior to make any adjustment. / Convergence adjustment must be perform for 480i-p (same for interlace & progressive), ZOOM 480i and 1080i.

HELPFUL HINT:
The easiest way to adjust convergence is to start adjusting from the center of the screen to the borders in all the convergence adjustments.
Once in "FINE" convergence mode press "4" on remote control frequently to change crossed sections, this helps to check convergence more accurate in more sections of the picture. Please see the following figuresthat show the cycle, this does not have any effect on the positions of the cursor.

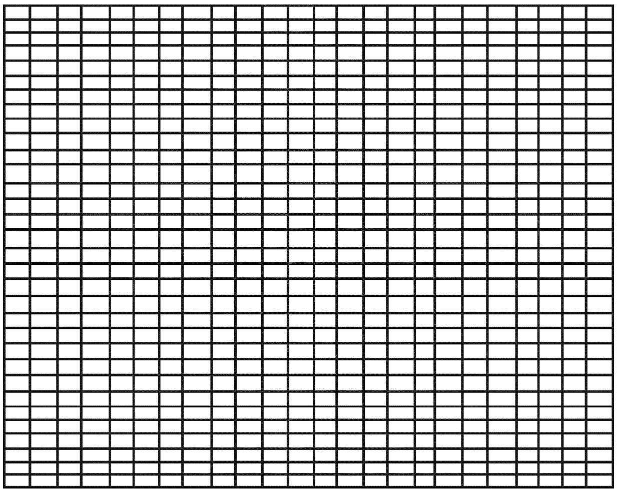
"FINE" convergence mode default Grid



"FINE" convergence mode after pressing "4" on remote



"FINE" convergence mode after pressing "4" on remote



PRESS BUTTON	TO
1(go) or 3(back)	change color view
2	change pattern
4 (only FINE mode)	change crossed sections
5	overlap
* 7	save data
8	copy from
9	clear
POWER	exit
RECALL	display values
R-TUNE	cycle colors
TV/VIDEO	change mode
TV/VIDEO (3 secs)	switch convergence mode (FINE/ COARSE)

*****
When “7” is pressed and the data is saved, it will overwrite the factory default.

ABOUT PATTERN:

- NTSC signal to adjust 480i-p (same for interlace and progressive)
- 480i signal with ptv in ZOOM aspect to adjust / Z480i
- 1080i signal to adjust 1080i

In “FINE ADJUSTMENT MODE” options, press “MUTE” key on remote to switch between “cursor” mode and “data” mode.

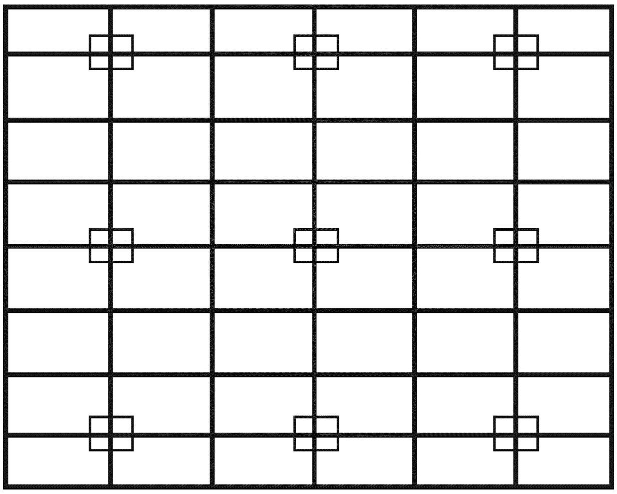
- Cursor mode (cursor flashing): Allows cursor movement by pressing VOL right - left and CH up - down.
- Data mode (cursor fixed): Allows making adjustment by pressing VOL

right - left and CH up - down.

PROCEDURE:

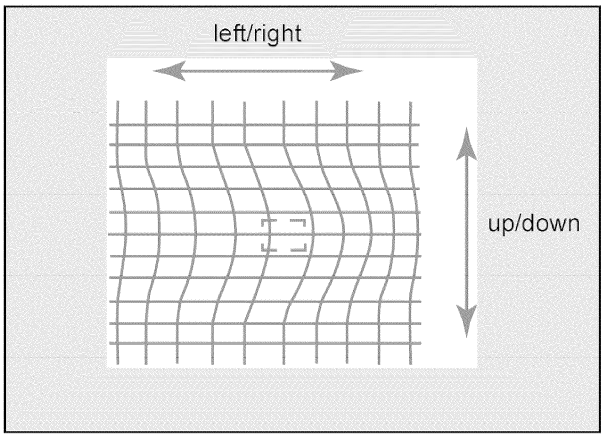
1. **To Enter to “G-EASY” mode (for green):**
   - **Select “EASY” DAC**
   - **Press POWER on remote**
   - **Press TV/VIDEO (repeatedly) to select mode.**
   - **Press R-TUNE (repeatedly) to select color**
2. **Press “2” repeatedly and apply the pattern of crosshatch.**
3. **Press “4” frequently to change crossed sections, this helps to check convergence more accurate in more sections of the picture.**
4. **Press “1 or 3” repeatedly until the pattern becomes green.**
5. **Press RECALL to display values.**
6. **In “EASY” mode, the adjustment value changes by 4 steps**
7. **“EASY” mode allows to move lines horizontally and vertically from the center of cursor**

“EASY” mode adjustment, possible locations for cursor



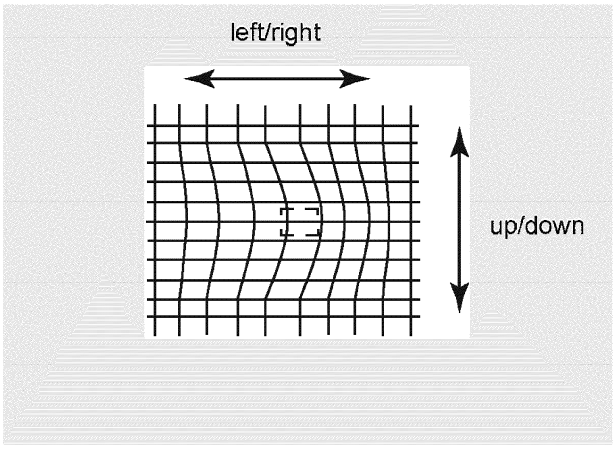
8. **This mode affects a wide area around the cursor than other adjustment modes, See values on screen by pressing RECALL on remote**
9. **Begin adjustment from the center to the edge of the screen.**
10. **Adjust when the cursor is not flashing by pressing CH up/down and VOL right/left on the remote control, if the cursor is flashing press MUTE on the remote**

“EASY” mode adjustment



11. To move the cursor press MUTE on the remote (cursor flashes), then move the cursor to any of the positions for “EASY” mode
12. This adjustment may help to make rounded lines become straight lines.
13. Adjust to make lines as straight as possible
14. Enter to POINT “G-POINT” (for green) mode by pressing TV/VIDEO.
15. “POINT” mode allows to move line horizontally and vertically from the perimeter of cursor making rounded lines become straight
16. In “POINT” mode, the adjustment data changes by 2 steps, See values on screen by pressing RECALL on remote
17. When the cursor is located in the outer area of the border the cursor starts to flash from one side to other, the location is for the non-visible area and the most outer side of screen (inside the ovals area, see figure); This applies to “LINE”, “POINT” & “ORIGIN.POINT” modes.
18. Begin adjustment from the center to the edge of the screen

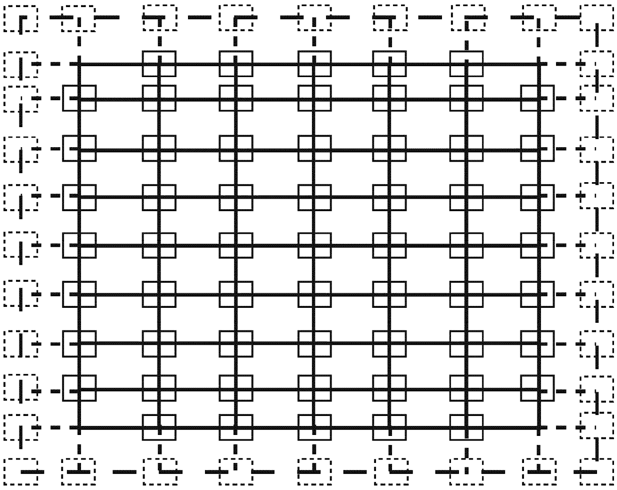
“POINT” & “ORIG. POINT” mode adjustment



19. Adjust to make lines as much straight as possible

20. When slightly adjustment is needed, use “ORIG. POINT” mode.
21. To enter to “G-ORIG. POINT” (for green) mode press TV/VIDEO.
22. With “ORIG. POINT”, the adjustment data changes by 1 step, this allows more detail in the adjustment. Display values on screen by pressing RECALL on remote
23. Confirm that green adjustment is good enough, if adjustment is not satisfactory, repeat adjustments.
24. Enter to LINE “G-LINE” mode by pressing TV/VIDEO.
25. LINE mode allows to move each single line horizontally and vertically (see figure)
26. Begin adjustment from the center to the edge of the screen (see figure)
27. Adjust to make distribute lines

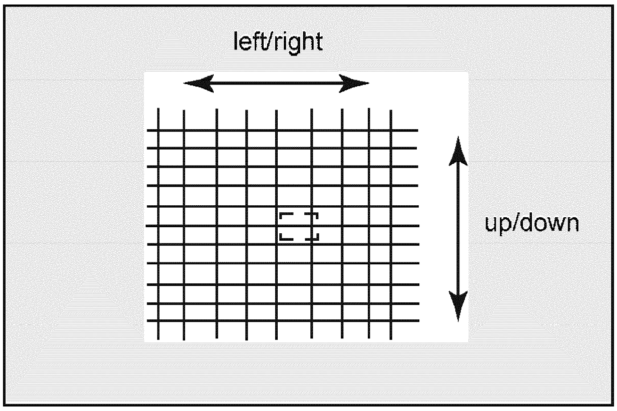
LINE, POINT, ORIG. POINT modes, possible locations for cursor



28. Then press “1 or 3” on the remote until red and green appears.

NOTE:
Since convergence adjustment will not allows to adjust every single cross section of the grid, it is very important to adjust, so that overall looks best, in “FINE” mode press “4” frequently on remote controlto cycle crosshatch pattern to verify convergence.

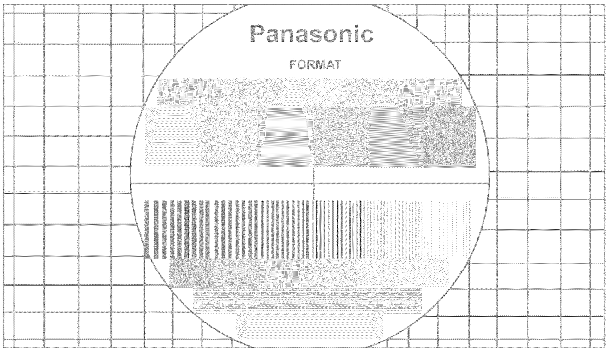
“LINE” mode adjustment



29. Perform adjustments for red so that red overlaps green, do not move green.
30. Press “1 or 3” on the remote until yellow (red and green) and blue appears, do not move green or red.
31. Perform adjustments so that blue overlaps Yellow (red and green).
32. Press “1 or 3” key on remote to display red, green and blue (white).
33. At this point the crosshatch pattern should look white.
34. If the crosshatch pattern is not only white, repeat adjustment for that specific color (red or blue).
35. Once the crosshatch pattern looks only white, perform the adjustments for White only (“POINT”, “ORIG. POINT” & “LINE”), notice that each adjustment must be only for white (red, green,blue)
36. Adjust white for a good line distribution and make lines completely straight.
37. Press “7” key on remote, then ACTION to save changes.
38. Press POWER then ACTION to exit convergence adjustments (DACs menu appears).

18.3. Horizontal and vertical size check

1. Apply a pattern that permits to check that horizontal and vertical proportion of the image is correct



2. Confirm that horizontal and vertical center of the picture is located in the center of the screen.
3. Check that the image is proportional horizontally and vertically, proportion is different on every aspect.

18.4. Convergence alignment template

The convergence alignment template is a grid approximately the size of the viewing screen used to ensure the proper size and shape of the alignment rasters. It is 6 blocks across by 8 blocks high. The grid dimensions vary with the mode of operation.Applya convergence alignment template to the viewing screen of the PTV. Make sure the center lines are properly aligned. If a template is not available, one can be created by following the instructions below.Create a convergence alignment template by drawing apattern, as in the figure, in the actual dimensions on transparent film or tracing paper. Start with the Horizontal and Vertical Center Axis and work outwards until the pattern is complete. Pay attention to the actual dimensions of the pattern.

Template dimensions:

- 53” Models: 1036mm horizontal x 584mm vertical.

- 53” Models: 1036mm horizontal x 584mm vertical.

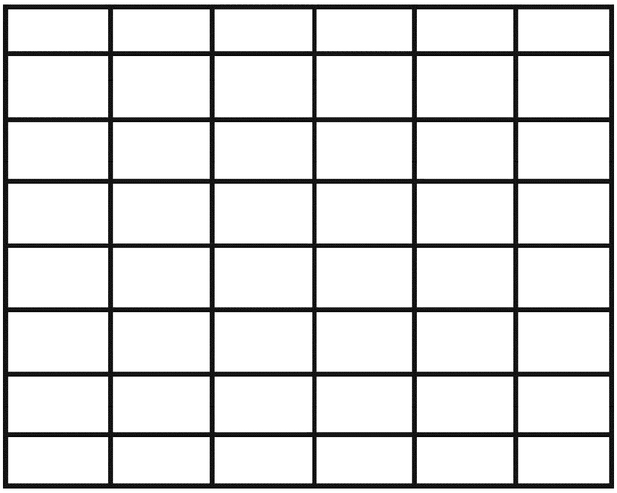
- 53” Models: 1036mm horizontal x 584mm vertical.

Grid dimensions:

SCREEN	MODE	HORIZONTAL	VERTICAL
47”	480i_p	43.00_mm	19.50_mm
	480i ZOOM	43.00_mm	25.50_mm
	1080i	40.00_mm	20.80_mm
53”	480i_p	48.70_mm	22.10_mm
	480i ZOOM	48.70_mm	28.80_mm
	1080i	46.60_mm	23.10_mm
56”	480i_p	51.50_mm	23.30_mm
	480i ZOOM	51.47_mm	30.48_mm
	1080i	47.90_mm	24.90_mm

NOTE:
A convergence alignment template, part number TXFQD01ESER for 47”, TXFQD01FSER for 53” and

TXFQD04ESER1 for 56” is available through Matsushita/Panasonic Services



19. Service Mode (electronic controls)

This receiver has electronic technology using the IC bus concept. It performs as a control function and it replaces many mechanical controls. Instead of adjusting mechanical controls individually, many of the control functions are now performedby using “on screen display menu”. (The service adjustment mode.)

NOTE:
It is suggested that the technician reads all the way through and understand the following procedure for entering/exiting the service adjustment mode; then proceed with the instructions working with the receiver. When becoming familiarwith the procedure, the flow chart for service mode may be used as a quick guide.

19.1. Quick entry to service mode:

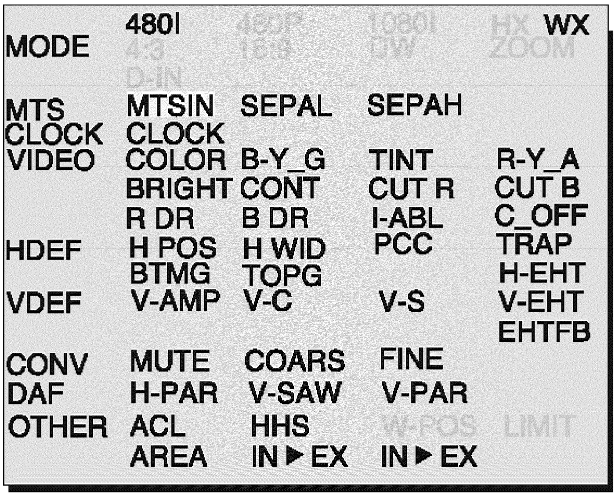
When minor adjustments need to be done to the electronic controls, the method for entering the service mode without removal of the cabinet back is as follows, using the remote control:

1. **Select SET-UP icon and select CABLE mode.**
2. **Select TIMER icon and set SLEEP time for 30 Min.**
3. **Press “ACTION” then VOL up to exit menus.**
4. **Tune to the Channel 124.**
5. **Adjust VOLUME to minimum (0).**
6. **Press VOL ← (decrease) on receiver. Red “CHK” appears in upper corner.**

To toggle between aging and service modes:
While the “CHK” is displayed on the left top corner of the CRT, pressing “ACTION” and “VOL” UP on the TV simultaneously will toggle between the modes. Red “CHK” for servicemode and yellow “CHK” for aging.

7. Press POWER on the remote control to display the service adjustment modes menu, select adjustment by pressing the VOL right/left buttons and CH up/down buttons on the remote and ACTION to enter the adjustment.

Service mode menu


MODE 480I 480P 1080I HX WX
4:3 16:9 DW ZOOM
D-IN
MTS MTSIN SEPAL SEPAH
CLOCK CLOCK
VIDEO COLOR B-Y_G TINT R-Y_A
BRIGHT CONT CUT R CUT B
R DR B DR I-ABL C_OFF
HDEF H POS H WID PCC TRAP
BTMG TOPG H-EHT
VDEF V-AMP V-C V-S V-EHT
EHTFB
CONV MUTE COARS FINE
DAF H-PAR V-SAW V-PAR
OTHER ACL HHS W-POS LIMIT
AREA IN ▶ EX IN ▶ EX

NOTE:

Some adjustments are available only in some modes (480i, 480p, 1080i); it is needed to apply the format; For some adjustments is required to perform adjustment for each format; convergence adjustment must be performed for 480i-p (same for interlace & progressive),ZOOM 480i and 1080i. A 1080i, 480p, 480i pattern can be obtained from Panasonic's TU-DST51 set-top box DTV decoder.

19.2. Exiting the service mode:

This PTV goes out from service mode when it is unplugged or turned OFF. To exit the service mode, turn the TV OFF or unplug the PTV from AC.

Other method

Press ACTION and POWER on the receiver simultaneously for at least 2 seconds.The receiver momentarily shuts off; then comes back on tuned to channel 3 with a preset level of sound.Any programmed channels, channels caption data and some others userdefined settings will be erased when exited by pressing ACTION and POWER on receiver.

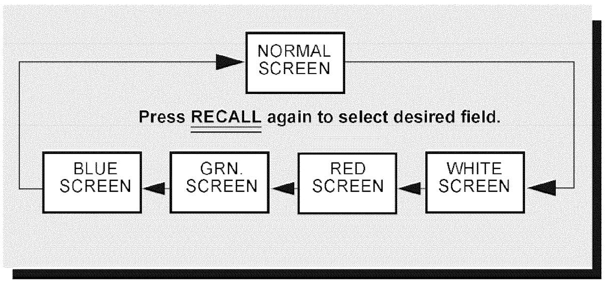
IMPORTANT NOTE

Always check that PTV exits the service mode

To check colors:

Press RECALL on the remote control when in service mode (red "CHK" is displayed) to enter the purity field check mode.

Color check



19.3. Service adjustment default values for items

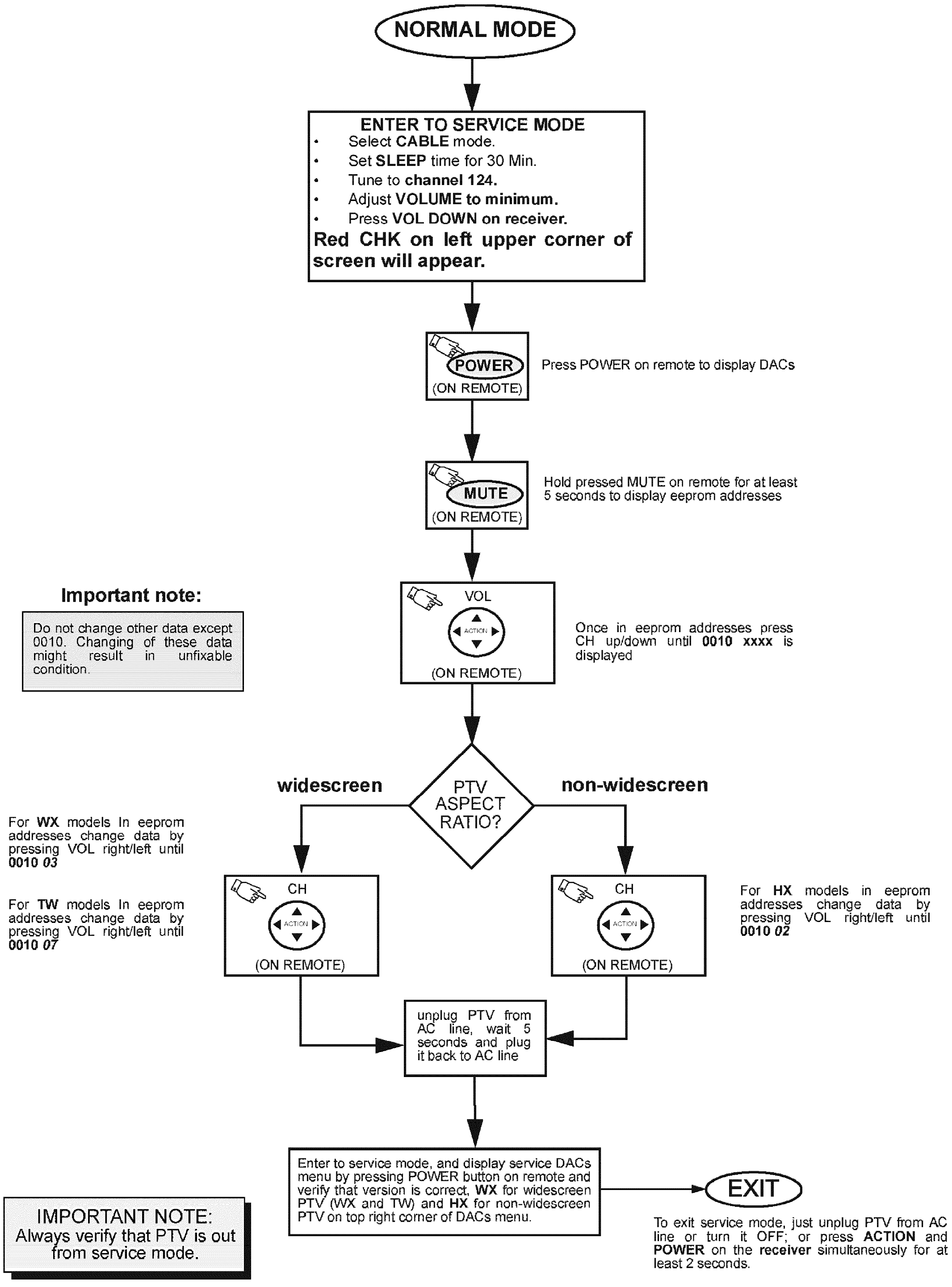
REGISTER	DESCRIPTION	FORMAT		
		NTSC	480i ZOOM	1080i
COLOR	COLOR	26	N/A	18
B_Y-G	MAGENTA TINT ADJ	38	N/A	40
TINT	TINT	88	N/A	86
R_Y-A	YELLOW TINT ADJ	AA	N/A	9A
BRIGH	SUB-BRIGHTNESS	01 F6	N/A	213
CONT	SUB-CONTRAST	9D	N/A	92
CUT-R	RED CUT-OFF	02 00	N/A	N/A
CUT-B	BLUE CUT-OFF	02 00	N/A	N/A
R DR	RED DRIVE	80	N/A	N/A
B DR	BLUE DRIVE	80	N/A	N/A
H-POS	HORIZONTAL POSITIONING	01 95	N/A	47
H-WID	HORIZONTAL WIDTH	7D	N/A	70
PCC	PINCUSHION CORRECTION	40	60	40
TRAP	TRAPEZOID	82	80	82
BTMG	BOTTOM CORNER PINCUSHION	56	50	56
TOPG	TOP CORNER PINCUSHION	56	50	56
V-AMP	VERTICAL SIZE	17	28	28
V-C	VERTICAL LINEARITY	20	20	20
V-S	VERTICAL S CORRECTION	13	13	13
TEST POS H		00 1B	N/A	N/A
TEST POS V		04 20	N/A	N/A
DATA POS	DATA POSITIONING	04 26	N/A	N/A
OSD POS H	HORIZONTAL OSD POSITIONING	73	4F	N/A
OSD POS V	VERTICAL OSD POSITIONING	4F	4F	N/A
COLOR DVI	COLOR DVI	80	80	80
B_Y-G DVI	MAGENTA TINT ADJ DVI	75	75	75
TINT DVI	TINT DVI	81	81	81
R_Y-A DVI	YELLOW TINT ADJ DVI	94	94	94

NOTE:
The above table shows the default values for the service items, this values can change depending on the serviced PTV.

Important notice:

Since Widescreen 16:9 and non-widescreen 4:3 PTVs use the same light box, for this reason is important to set it to the correct version (16:9 or 4:3). To check this plese see “Instructional flow chart for format aspect switching” inthe following section.

19.4. Instructional flow chart for light-box format aspect switching (WX 16:9, TW 16:9 or HX 4:3)


NORMAL MODE
POWER
(ON REMOTE)
MUTE
(ON REMOTE)
VOL
ACTION
(ON REMOTE)
widescreen
PTV ASPECT RATIO?
non-widescreen
CH
ACTION
(ON REMOTE)
CH
ACTION
(ON REMOTE)
EXIT

ENTER TO SERVICE MODE

- Select **CABLE** mode.
- Set **SLEEP** time for 30 Min.
- Tune to **channel 124.**
- Adjust **VOLUME to minimum.**
- Press **VOL DOWN on receiver.**

Red CHK on left upper corner of screen will appear.

Press POWER on remote to display DACs

Hold pressed MUTE on remote for at least 5 seconds to display eeprom addresses

Once in eeprom addresses press CH up/down until **0010 xxxx** is displayed

Important note:

Do not change other data except 0010. Changing of these data might result in unfixable condition.

For **WX** models In eeprom addresses change data by pressing VOL right/left until **0010 *03***

For **TW** models In eeprom addresses change data by pressing VOL right/left until **0010 *07***

For **HX** models in eeprom addresses change data by pressing VOL right/left until **0010 *02***

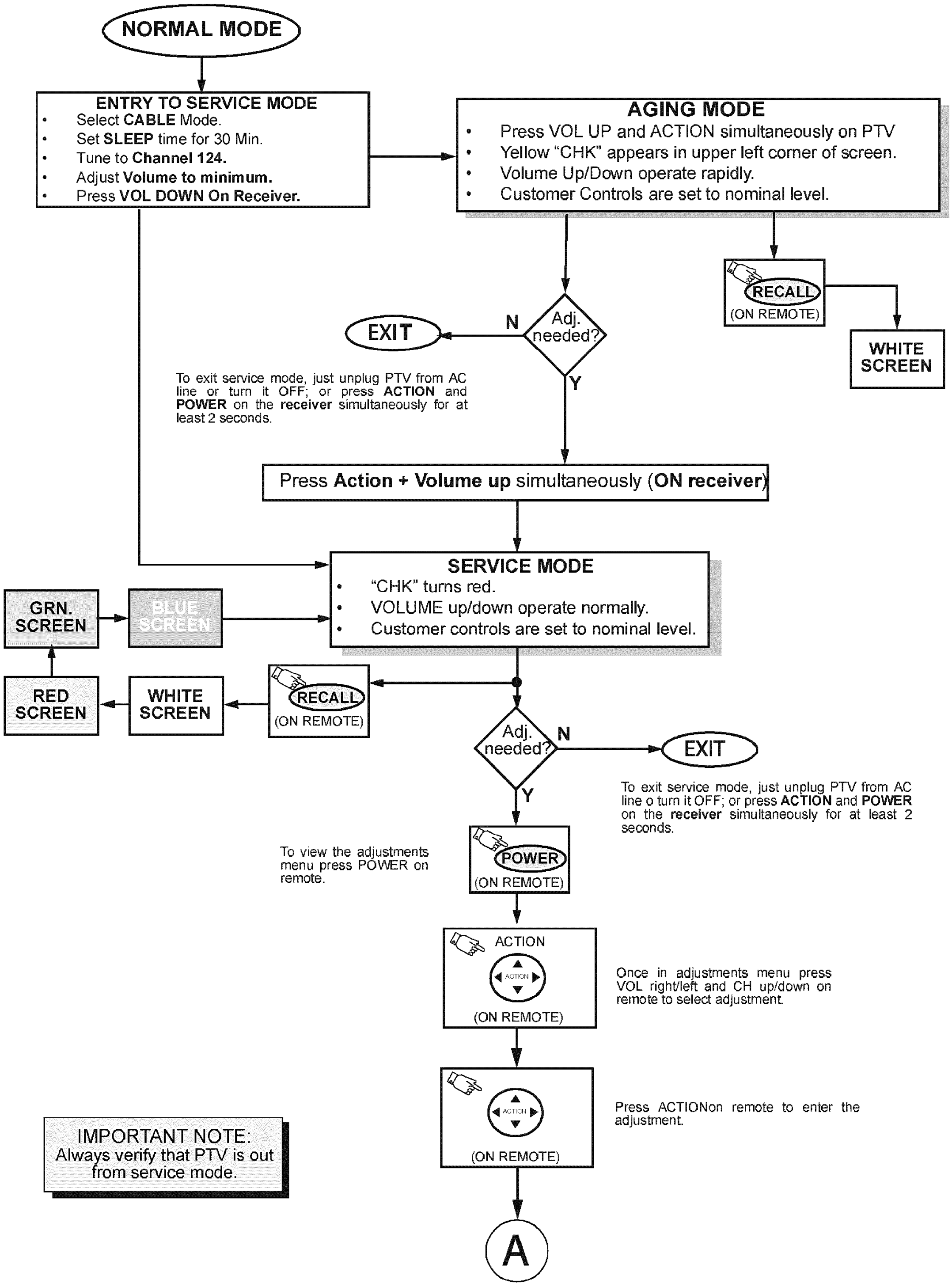
unplug PTV from AC line, wait 5 seconds and plug it back to AC line

Enter to service mode, and display service DACs menu by pressing POWER button on remote and verify that version is correct, **WX** for widescreen PTV (WX and TW) and **HX** for non-widescreen PTV on top right corner of DACs menu.

To exit service mode, just unplug PTV from AC line or turn it OFF; or press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds.

IMPORTANT NOTE:
Always verify that PTV is out from service mode.

19.5. Instructional flow for service mode


NORMAL MODE
GRN. SCREEN
BLUE SCREEN
RED SCREEN
WHITE SCREEN
RECALL
(ON REMOTE)
WHITE SCREEN
EXIT
N
Adj. needed?
Y
RECALL
(ON REMOTE)
Adj. needed?
N
EXIT
Y
POWER
(ON REMOTE)
ACTION
ACTION
(ON REMOTE)
ACTION
(ON REMOTE)
A

ENTRY TO SERVICE MODE

- Select **CABLE** Mode.
- Set **SLEEP** time for 30 Min.
- Tune to **Channel 124.**
- Adjust **Volume to minimum.**
- Press **VOL DOWN On Receiver.**

AGING MODE

- Press VOL UP and ACTION simultaneously on PTV
- Yellow "CHK" appears in upper left corner of screen.
- Volume Up/Down operate rapidly.
- Customer Controls are set to nominal level.

To exit service mode, just unplug PTV from AC line or turn it OFF; or press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds.

Press **Action + Volume up** simultaneously (**ON receiver**)

SERVICE MODE

- "CHK" turns red.
- VOLUME up/down operate normally.
- Customer controls are set to nominal level.

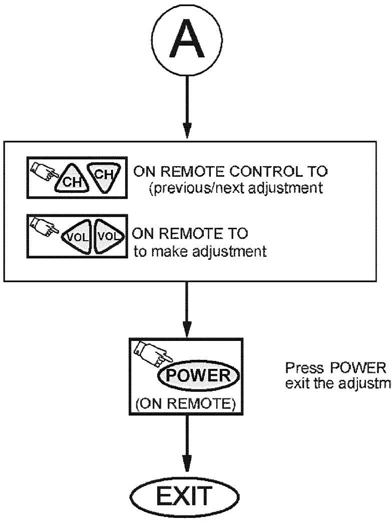
To exit service mode, just unplug PTV from AC line o turn it OFF; or press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds.

To view the adjustments menu press POWER on remote.

Once in adjustments menu press VOL right/left and CH up/down on remote to select adjustment.

Press ACTIONon remote to enter the adjustment.

IMPORTANT NOTE:
Always verify that PTV is out from service mode.


A
CH
CH
ON REMOTE CONTROL TO (previous/next adjustment
VOL
VOL
ON REMOTE TO to make adjustment
POWER
(ON REMOTE)
EXIT

Press POWER or ACTION on remote to exit the adjustment.

IMPORTANT NOTE:
Always verify that PTV is out from service mode.

To exit service mode, just unplug PTV from AC line or turn it OFF; or press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds.

20. Reference of PDF links color

DESCRIPTION OF PDF LINK COLORS	
TYPE	**DESTINATION**
SCHEMATIC	
YELLOW ON IC	IC ON PCB
YELLOW ON CONNECTOR	CONNECTOR ON PCB
YELLOW ON SCHEMATIC	PCB
CYAN	WAVEFORM
GREEN ON SIDE	SCHEMATIC CONTINUED
GREEN ON CONNECTOR	CONNECTOR CONNECTION
BLUE ON IC	VOLTAGE
PCB	
BLUE ON IC	IC ON SCHEMATIC
BLUE ON CONNECTOR	CONNECTOR ON SCHEMATIC
BLUE ON PCB	SCHEMATIC
GREEN ON SIDE	PCB CONTINUED
BLOCK DIAGRAMS	
GREEN ON IC	IC ON SCHEMATIC
GREEN ON SIDE	BLOCK DIAGRAM CONTINUED

21. Conductor views

21.1. A-Board 1 of 2

21.2. A-Board 2 of 2

21.3. D-Board 1 of 2

21.4. D-Board 2 of 2

21.5. DG-Board top view 1 of 4

21.6. DG-Board top view 2 of 4

21.7. DG-Board top view 3 of 4

21.8. DG-Board top view 4 of 4

21.9. DG-Board bottom view 1 of 4

21.10. DG-Board bottom view 2 of 4

21.11. DG-Board bottom view 3 of 4

21.12. DG-Board bottom view 4 of 4

21.13. DV-Board top view 1 of 2

21.14. DV-Board top view 2 of 2

21.15. DV-Board bottom view 1 of 2

21.16. DV-Board bottom view 2 of 2

21.17. DC-Board top view 1 of 2

21.18. DC-Board top view 2 of 2

21.19. DC-Board bottom view 1 of 2

21.20. DC-Board bottom view 2 of 2

21.21. LR-Board

21.22. LG-Board

21.23. LB-Board

21.24. G, K, R-Board

22. Block diagrams

22.1. Audio block diagram

22.2. Video block diagram

23. Schematic diagrams

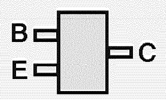
23.1. Schematic diagrams notes

Notes:

IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

CHIP TRANSISTOR LEAD DESIGNATION



SCHEMATIC NOTES

1. Resistors are carbon 1/4W unless noted otherwise.
2. Capacitors are ceramic 50V unless noted otherwise.
3. Coil value notes is inductance in µH.
4. Test point indicated by ● ; Test point but no pin ○.
5. Components indicated with ⚠ are critical parts and replacement should be made with manufacture specified replacement parts only.
6. ▬ (**BOLD LINE**) indicates the route of B+ supply.
7. The schematic diagrams are current at the time of printing and are subject to change without notice.
8. Ground symbol ⏚ indicates **HOT GROUND CONNECTION**; ⊥ indicates COLD GROUND.

NOTE: All other component symbols are used for engineering design purposes.

VOLTAGE MEASUREMENTS

1. Voltage measurement:
   - AC input to the Receiver is 120V. NTSC (HD, 1125i & 525P when applicable) signal generator is connected to the antenna of the Receiver. (Color bar pattern of 100 IRE white and 7.5 IRE black.)
   - All Picture and Audio adjustments are set to Normalize.
     TV ANT/CABLE - (Set-Up Menu) in TV/ANT Mode
     Volume - Min.
     TV/Video SW - TV position
     Audio Mode - Stereo
   - Voltage readings are nominal and may vary ±10% on active devices. Some voltage reading will vary with signal strength and picture content.
   - Supply voltages are nominal.
2. Ground symbol ⏚ indicates ground lead connection of meter.
   Incorrect ground connection will result in erroneous readings.

CAUTION: ***Incorrect ground connection of the test equipment will result in erroneous readings.***

WAVEFORM MEASUREMENTS

1. ③ indicates waveform measurement. (Measurement can be taken at the best accessible location in common to the indicated point.)
2. Taken with an NTSC signal generator connected to the antenna terminal. (NTSC color bar pattern of 8 bars of EIA colors, 100 IRE white and 7.5 IRE black.)
3. Customer Controls (Picture/Audio Menu) are set to Normalize. Volume is set to “MIN”.
4. All video and color waveforms are taken with a wideband scope and a probe with low capacitance (10 to 1). Shape and peak altitudes may vary depending on the type of Oscilloscope used and its settings.
5. Ground symbol ⏚ shown on waveform number indicates (Hot) ground lead connection of the Oscilloscope.

CAUTION: Incorrect ground connection of the test equipment will result in erroneous readings.

readings.

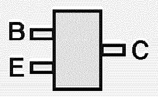
23.2. Notas de los diagramas esquematicos

Notas

NOTA DE SEGURIDAD

LOS DIAGRAMAS ELÉCTRICOS INCLUYEN CARACTERÍSTICAS ESPECIALES MUY IMPORTANTES PARA LA PROTECCIÓN CONTRA RAYOS-X, QUEMADURAS Y DESCARGAS ELÉCTRICAS. CUANDO SE DE SERVICIO ES IMPORTANTE USAR PARA REEMPLAZO DE COMPONENTES CRITICOS, SOLO PARTES ESPECIFICADAS POR EL FABRICANTES. LOS COMPONENTES CRITICOS ESTAN SEÑALADOS EN LOS DIAGRAMAS POR EL SIMBOLO ⚠.

IDENTIFICACIÓN DE TERMINALES PARA TRANSISTORES EN *CHIP*



NOTAS DE LOS DIAGRAMAS

1. Las Resistencias son de Carbón de 1/4W, a menos que se indique otra característica.
2. Los Capacitores son de Cerámica para 50V, a menos que se indique otra característica.
3. El valor indicado de las Bobinas es la inductancia expresada en μH.
4. Los puntos de prueba en la terminal de algún componente son indicados por ⍑ Los puntos de prueba fuera de los componentes se indican con ⍑.
5. Los componentes señalados con el símbolo ⚠ son considerados componentes críticos y deben ser reemplazados sólo con las partes especificadas por el fabricante.
6. ▬ (**LINEA GRUESA**) indica las líneas de alimentación de los Voltajes B+.
7. Los diagramas eléctricos están sujetos a cambio sin previo aviso.
8. El símbolo ⏚ indica que es una conexión a **Tierra Caliente** y el símbolo ⏚ indica conexión a **Tierra Fría**.

NOTA: Los demas símbolos de componentes incluidos son usados con fines de diseño.

MEDICIÓN DE VOLTAJES

1. Medición de voltaje:
   - El voltaje de entrada al Receptor es de 120V de Corriente Alterna. Un generador de patrones con formato NTSC se conecta a la entrada de la antena. (Patrón de Barras de Colores con 100 IREs para el Blanco y 7.5 IREs para el Negro.)
   - Los ajustes de los Menus Picture y Audio se normalizan.
     En el Menú Set-Up, en la opción ANTENA, se selecciona el modo de CABLE.
     El nivel de Volumen se minimiza.
     De los modos TV y Video, seleccionar el modo TV.
     Seleccionar modo Estereo del Audio.
   - Las mediciones de los voltajes son nominales y pueden variar hasta 10% en componentes en funcionamiento. Las lecturas de los voltajes pueden variar por la potencia de la señal y el contenido de la imagen.
   - Las fuentes de voltajes son nominales.
2. El símbolo ⏚ indica el tipo de tierra que se utiliza en la conexión del medidor.

PRECAUCION: SI no se utiliza la conexión a la tierra adecuada, se obtendrán mediciones equivocadas y podría dañar el equipo de medición.

MEDICIÓN DE FORMAS DE ONDA

1. Un símbolo como ③ indica el punto para medir una señal. (La medición puede hacerse en el punto con mayor accesibilidad, siempre que sea común al indicado.)
2. Se midieron utilizando un generador con formato NTSC conectado a la terminal de la antena. (Patrón de 8 Barras de Colores EAI, formato NTSC de 100 IREs para el Blanco y 7.5 IREs para el Negro.)
3. Los ajustes de usuario de los Menus PICTURE y AUDIO se normalizaron

banda alta y con un punta de prueba de baja capacitancia (10 a 1). La forma y amplitud de las ondas puede variar según el tipo de osciloscopio que se utilice y sus características.

5. El símbolo de tierra ⏚ que aparece junto al número de la forma de onda, indica que se utiliza conexión a **Tierra Caliente** en el extremo negativo de la punta de prueba.

PICTURE y AUDIO se normalizaron. Posteriormente el nivel de volumen se ajusta al mínimo.

4. Las formas de onda de Video y Color fueron tomadas con un osciloscopio de

PRECAUCION: Si no se utiliza la conexión a la tierra adecuada, se obtendrán mediciones equivocadas y podría dañar el equipo de medición.

23.3. A-Board schematic 1 of 4

23.4. A-Board schematic 2 of 4

23.5. A-Board schematic 3 of 4

23.6. A-Board schematic 4 of 4

23.7. D-Board schematic 1 of 5

23.8. D-Board schematic 2 of 5

23.9. D-Board schematic 3 of 5

23.10. D-Board schematic 4 of 5

23.11. D-Board schematic 5 of 5

23.12. DG-Board schematic 1 of 6

23.13. DG-Board schematic 2 of 6

23.14. DG-Board schematic 3 of 6

23.15. DG-Board schematic 4 of 6

23.16. DG-Board schematic 5 of 6

23.17. DG-Board schematic 6 of 6

23.18. DV-Board schematic 1 of 3

23.19. DV-Board schematic 2 of 3

23.20. DV-Board schematic 3 of 3

23.21. DC-Board schematic 1 of 2

23.22. DC-Board schematic 2 of 2

23.23. LR-Board schematic

23.24. LG-Board schematic

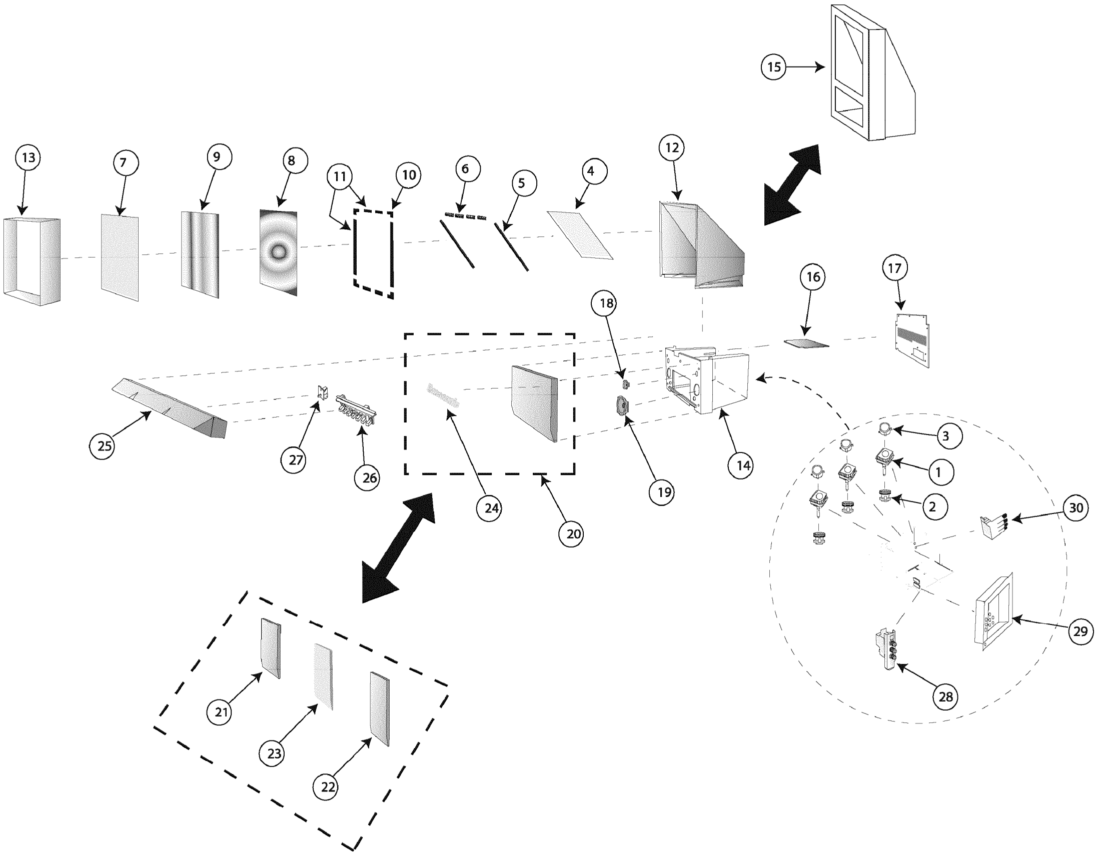
23.25. LB-Board schematic

23.26. G, K, R-Board schematic

23.27. Voltages

23.28. Waveforms

24. Parts location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25. Parts list

25.1. Description of abbreviations guide

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor
Example :
ERD25TJ104 **C** 100KΩ, **J**, 1/4W
Type Allowance

Type	Allowance
C : Carbon	F : ± 1%
F : Fuse	G : ± 2%
M : Metal Oxide Metal Film	J : ± 5% K : ± 10%
S : Solid	M : ± 20%
W : Wire Wound	

2. Capacitor
Example :
ECKF1H103ZF **C** 0.01μF, **Z**, 50V
Type Allowance

Type	Allowance
C : Carbon	C : ± 0.25pF
E : Electrolytic	D : ± 0.5pF
P : Polyester Polypropylene	F : ± 1pF G : ± 3%
T : Tantalum	J : ± 5%
	K : ± 10%
	L : ± 15%
	M : ± 20%
	P : ± 100%, -0%
	Z : ± 80%, -20%

25.2. Parts list

Ref. No.	Part No.	Part Name & Description	Remarks
		CAPACITORS	
C002	**TCJ2VC1H220J**	**CAP C 22PF-J-50V**	
C003	**TCJ2VC1H220J**	**CAP C 22PF-J-50V**	
C004	**F2A1H4R7A162**	**CAP E 4.7UF-50V**	
C005	**F2A1H2R2A162**	**CAP E 2.2UF-50V**	
C006	**ECA0JM332E**	**CAP E 3300UF-6.3V**	
C008	**F2A1H4R7A162**	**CAP E 4.7UF-50V**	
C009	**TCJ2VC1H220J**	**CAP C 22PF-J-50V**	
C010	**TCJ2VC1H220J**	**CAP C 22PF-J-50V**	
C011	**TCJ2VF1H104Z**	**CAP C .1UF-Z-50V**	
C012	**TCJ2VF1H104Z**	**CAP C .1UF-Z-50V**	
C013	**ECA0JM332E**	**CAP E 3300UF-6.3V**	
C014	**F2A1H2R2A162**	**CAP E 2.2UF-50V**	
C017	**TCJ2VF1H104Z**	**CAP C .1UF-Z-50V**	
C018	**TCJ2VF1H104Z**	**CAP C .1UF-Z-50V**	
C021	**F2A1HR22A162**	**CAP E .22UF-50V**	
C022	**F2A1HR22A162**	**CAP E .22UF-50V**	
C033	**ECJ2VF1C105Z**	**CAP C 1.0UF-Z-16V**	
C051	**EEUFC1E470B**	**CAP E 47UF-25V**	
C052	**ECKR1H103ZF5**	**CAP C .01UF-Z-50V**	
C301	**F2A2E100A025**	**CAP E 10UF-250V**	
C302	**ECCR1H221JC5**	**CAP C 220PF-J-50V**	
C304	**ECKW2H103PU8**	**CAP C .01UF-P-500V**	
C305	**F2A1H470A162**	**CAP E 47UF-50V**	

Ref. No.	Part No.	Part Name & Description	Remarks
C306	F2A2E100A025	CAP E 10UF-250V	
C307	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C312	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C313	ECKR2H102KB5	CAP C 1000PF-K-500V	
C331	F2A1H470A162	CAP E 47UF-50V	
C332	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C333	F2A1H470A162	CAP E 47UF-50V	
C334	F2A2E470A026	CAP E 47UF-250V	
C335	ECCR1H221JC5	CAP C 220PF-J-50V	
C336	F2A1H470A162	CAP E 47UF-50V	
C337	F2A2E470A026	CAP E 47UF-250V	
C339	ECKW2H103PU8	CAP C .01UF-P-500V	
C340	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C341	F2A2E100A025	CAP E 10UF-250V	
C345	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C346	ECKR2H102KB5	CAP C 1000PF-K-500V	
C361	F2A1C101A159	CAP E 100UF-16V	
C362	ECCR1H221JC5	CAP C 220PF-J-50V	
C364	ECKW2H103PU8	CAP C .01UF-P-500V	
C365	F2A2E100A025	CAP E 10UF-250V	
C366	F2A1H470A162	CAP E 47UF-50V	
C367	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C372	ECKC3D102KBN	CAP C 1000PF-K-2KV	
C373	ECKR2H102KB5	CAP C 1000PF-K-500V	
C374	F2A1C101A159	CAP E 100UF-16V	
C405	ECA1EHG102E	CAP E 1000UF-25V	
C406	ECA1EHG102E	CAP E 1000UF-25V	
C407	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C408	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C411	TCJ2VB1H822K	CAP C 8200PF-K-50V	
C412	ECQB1224KF3	CAP P .22UF-K-100V	
C413	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C414	TCJ2VB1H272K	CAP C 2700PF-K-50V	
C417	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C418	TCJ2VF1H223Z	CAP C .022UF-Z-50V	
C421	ECA1CEN100B	CAP E 10UF-16V	
C458	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C461	ECA1HHG221B	CAP E 220UF-50V	
C501	ECA1EM101B	CAP E 100UF-25V	
C502	ECQV1H105JL3	CAP P 1.0UF-J-50V	
C503	ECKR2H102KB5	CAP C 1000PF-K-500V	
C509	ECWF2474JSR	CAP P .47UF-J-200V	
C510	TCJ2VC1H221J	CAP C 220PF-J-50V	
C511	ECWH20222JVY	CAP P 2200PF-J-2KV	⚠
C512	ECWH20102JVY	CAP P 1000PF-J-2KV	⚠
C513	ECQF4103JZH	CAP P .01UF-J-400V	⚠
C514	ECWH20222JVY	CAP P 2200PF-J-2KV	⚠
C518	ECKW3D221JBP	CAP C 220PF-J-2KVDC	⚠
C519	ECKW3D221JBP	CAP C 220PF-J-2KVDC	⚠
C520	ECQB1H103JF3	CAP P .01UF-J-50V	⚠
C522	ECWH20182JVY	CAP P 1800PF-J-2KV	⚠
C523	ECWH20182JVY	CAP P 1800PF-J-2KV	⚠
C524	ECQB1224JF3	CAP P .22UF-J-100V	
C525	ECEA1HN220UB	CAP E 22UF/50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C526	F2A2E101A026	CAP E 100UF-250V	
C527	ECKR2H102KB5	CAP C 1000PF-K-500V	
C528	F2A1H470A162	CAP E 47UF-50V	⚠
C531	ECA160V33UE	CAP E 33UF/160V	
C533	ECKR2H101KB5	CAP C 100UF-K-500V	
C535	ECA1EM471E	CAP E 470UF-25V	
C601	EEUFC1C331B	CAP E 330UF-16V	
C602	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C701	F2A1C101A159	CAP E 100UF-16V	
C702	ECKR3D271KBP	CAP C 270PF-K-2KV	
C703	ECQM2104KZW	CAP P .1UF-K-200V	
C704	ECKR2H391KB5	CAP C 390PF-K-500V	
C707	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C708	ECQE1685KFB	CAP P 6.8UF-K-100V	
C801	ECQU2A104MNB	CAP P .10UF-M-250VAC	⚠
C802	ECQU2A823MNB	CAP P .082UF-M-250VAC	⚠
C803	ECKCNA222ME7	CAP C 2200PF-M-125V	⚠
C804	ECKCNA222ME7	CAP C 2200PF-M-125V	⚠
C805	ECKR2H472PU7	CAP C 4700PF-P-500V	⚠
C806	ECKR2H472PU7	CAP C 4700PF-P-500V	⚠
C807	ECKR2H472PU7	CAP C 4700PF-P-500V	⚠
C808	ECA1EM101B	CAP E 100UF-25V	
C809	TCJ2VB1E223K	CAP C .022UF-K-25V	
C810	EETED2D102C	CAP E 1000PF-200V	⚠
C812	ECA1EHG471B	CAP E 470UF-25V	
C814	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C815	ECQB1H152JF3	CAP P 1500PF-J-50V	
C816	ECKW3D821KBP	CAP C 820PF-K-2KV	
C817	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C819	ECQB1H102JF3	CAP P 1000PF-J-50V	
C820	ECQV1H334JL3	CAP P .33UF-J-50V	
C821	ECQB1H272KF3	CAP P 2700PF-K-50V	
C822	F2A1H220A162	CAP E 22UF-50V	
C823	TCJ2VC1H151J	CAP C 150PF-J-50V	
C824	EEUFC1V151B	CAP E 150UF-35V	
C825	ECKCNA102MBB	CAP C .001UF-M-125V	⚠
C826	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C830	EETHC2C471B	CAP E 470PF-160V	⚠
C831	ECKR3D821KBP	CAP C 820PF-K-2KV	
C832	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C834	EEUFC1V222E	CAP E 2200UF-35V	
C836	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C837	F2A1E472A135	CAP E 4700UF-25V	
C839	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C841	F2A1E472A135	CAP E 4700UF-25V	
C842	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C843	ECA1VM222B	CAP E 2200UF-35V	
C844	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C845	ECA1VM222B	CAP E 2200UF-35V	
C846	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C848	F2A1C101A159	CAP E 100UF-16V	
C849	ECKR1H223ZF5	CAP C .022UF-Z-50V	
C851	ECQV1H104JL3	CAP P .10UF-J-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C852	ECA1EM101B	CAP E 100UF-25V	
C854	F2A1C101A159	CAP E 100UF-16V	
C855	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C876	ECJ3VF1H224Z	CAP C .22UF-Z-50V	
C877	ECA0JM221B	CAP E 220UF-6.3V	
C878	EEUFC1V561B	CAP E 560UF-35V	
C879	EEUFC1C471LB	CAP E 470UF-16V	
C880	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C881	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C882	ECA0JM221B	CAP E 220UF-6.3V	
C883	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C885	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C886	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C887	EEUFC1V561B	CAP E 560UF-35V	
C888	EEUFC1V561B	CAP E 560UF-35V	
C889	ECJ2YF1E474Z	CAP C .47UF-Z-25V	
C890	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C891	EEUFC1C471LB	CAP E 470UF-16V	
C892	F2A1C221A159	CAP E 220UF-16V	
C893	EEUFC1C471LB	CAP E 470UF-16V	
C895	ECJ3VF1H224Z	CAP C .22UF-Z-50V	
C896	ECJ3VF1H224Z	CAP C .22UF-Z-50V	
C897	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C902	ECQM2103KZ3	CAP P .01UF-K-200V	
C903	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C904	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C906	ECQM2103KZ3	CAP P .01UF-K-200V	
C907	F2A2C100A023	CAP E 10UF-160V	
C908	F2A1C101A159	CAP E 100UF-16V	
C909	F2A1C101A159	CAP E 100UF-16V	
C910	F2A2C100A023	CAP E 10UF-160V	
C912	F2A1H220A162	CAP E 22UF-50V	
C931	F2A1H101A162	CAP E 100UF-50V	
C932	TCJ2VB1H103K	CAP C .01UF-K-50V	
C933	F2A1C101A159	CAP E 100UF-16V	
C934	ECA1CM100B	CAP E 10UF-16V	
C935	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C936	TCJ2VB1H103K	CAP C .01UF-K-50V	
C939	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C940	ECQM2103KZ3	CAP P .01UF-K-200V	
C941	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C942	ECQM2103KZ3	CAP P .01UF-K-200V	
C943	F2A2C100A023	CAP E 10UF-160V	
C944	F2A1C101A159	CAP E 100UF-16V	
C945	F2A1C101A159	CAP E 100UF-16V	
C947	F2A2C100A023	CAP E 10UF-160V	
C962	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C963	ECQM2103KZ3	CAP P .01UF-K-200V	
C965	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C966	ECQM2103KZ3	CAP P .01UF-K-200V	
C967	F2A2C100A023	CAP E 10UF-160V	
C968	F2A1C101A159	CAP E 100UF-16V	
C969	F2A1C101A159	CAP E 100UF-16V	
C970	F2A2C100A023	CAP E 10UF-160V	
C972	F2A1H220A162	CAP E 22UF-50V	
C1101	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C1102	TCJ2VF1H104Z	CAP C .1UF-Z-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C1103	TCJ2VB1C104K	CAP C .1UF-K-16V	
C1105	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C1112	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C1113	ECEA1CKA101B	CAP E 100UF-16V	
C1502	ECQE6104KFB	CAP P 100UF-K-100V	
C1503	ECQE6104KFB	CAP P 100UF-K-100V	
C1504	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C1505	F2A1C101A159	CAP E 100UF-16V	
C1506	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C1508	F2A1C101A159	CAP E 100UF-16V	
C1509	ECEA1HKA010B	CAP E 1UF-50V	
C1510	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C1511	TCJ2VC1H471J	CAP C 470PF-J-50V	
C1513	ECEA1EN101UB	CAP E 100UF-25V	
C1514	F2A1C101A159	CAP E 100UF-16V	
C2202	F2A1H2R2A162	CAP E 2.2UF-50V	
C2203	F2A1H4R7A162	CAP E 4.7UF-50V	
C2204	ECSF1CE106VB	CAP T 10.6UF-16V	
C2205	F2A1H1R0A162	CAP E 1.0UF-50V	
C2206	ECQB1H223JF3	CAP P .022UF-J-50V	
C2207	ECSF1CE335VB	CAP T 3.3UF-16V	
C2208	TCJ2VB1C104K	CAP C .1UF-K-16V	
C2209	TCJ2VB1C104K	CAP C .1UF-K-16V	
C2210	TCJ2VB1C104K	CAP C .1UF-K-16V	
C2211	F2A1H100A162	CAP E 10UF-50V	
C2212	ECQB1H473JF3	CAP P .047UF-J-50V	
C2213	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C2214	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C2215	F2A1C101A159	CAP E 100UF-16V	
C2218	F2A1HR47A162	CAP E .47UF-50V	
C2303	ECA1EM101B	CAP E 100UF-25V	
C2304	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C2330	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2331	F2A1H100A162	CAP E 10UF-50V	
C2332	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2333	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2334	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C2335	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2337	ECA50YT2R2KB	CAP E 2.2UF-50V	
C2338	ECA50YT2R2KB	CAP E 2.2UF-50V	
C2342	TCJ2VB1H333K	CAP C .033UF-K-50V	
C2343	ECEA1CN100UB	CAP E 10UF-16V	
C2344	ECQB1H224JF3	CAP P .22UF-J-50V	
C2345	EEUFC1E222E	CAP E 2200UF-25V	
C2346	TCJ2VB1H561K	CAP C 560PF-K-50V	
C2347	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2348	F2A1H100A162	CAP E 10UF-50V	
C2349	ECEA1CN100UB	CAP E 10UF-16V	
C2351	F1J1C225A083	CAP C 2.2UF-Z-16V	
C2352	EEUFC1E222E	CAP E 2200UF-25V	
C2354	TCJ2VB1H471K	CAP C 470PF-K-50V	
C2355	TCJ2VC1H270J	CAP C 27PF-J-50V	
C2356	TCJ2VB1H471K	CAP C 470PF-K-50V	
C2357	TCJ2VB1H331K	CAP C 330PF-K-50V	
C2358	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2359	TCJ2VB1H331K	CAP C 330PF-K-50V	
C2360	ECJ3VB1H104K	CAP C .1UF-K-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C2361	TCJ2VB1H471K	CAP C 470PF-K-50V	
C2362	TCJ2VB1H471K	CAP C 470PF-K-50V	
C2363	TCJ2VB1H682K	CAP C 6800PF-K-50V	
C2364	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2365	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2367	ECQB1H224JF3	CAP P .22UF-J-50V	
C2368	TCJ2VB1H333K	CAP C .033UF-K-50V	
C2369	TCJ2VB1H561K	CAP C 560PF-K-50V	
C2370	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2371	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2373	TCJ2VB1H682K	CAP C 6800PF-K-50V	
C2374	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2375	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2451	ECEA1HN4R7UB	CAP E 4.7UF-50V	
C2452	ECEA1HN4R7UB	CAP E 4.7UF-50V	
C2453	TCJ2VB1H332K	CAP C .0033UF-K-50V	
C2454	TCJ2VB1H332K	CAP C .0033UF-K-50V	
C2455	TCJ2VB1H333K	CAP C .033UF-K-50V	
C2456	TCJ2VB1H333K	CAP C .033UF-K-50V	
C2457	TCJ2VB1H222K		
C2458	TCJ2VB1H222K		
C2459	TCJ2VB1C224K		
C2460	TCJ2VB1C224K		
C2461	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2462	TCJ2VB1C104K	CAP C .1UF-K-16V	
C2463	TCJ2VB1C104K	CAP C .1UF-K-16V	
C2464	F2A1H4R7A162	CAP E 4.7UF-50V	
C2465	F2A1H4R7A162	CAP E 4.7UF-50V	
C2466	F2A1H4R7A162	CAP E 4.7UF-50V	
C2467	F2A1H4R7A162	CAP E 4.7UF-50V	
C2468	F2A1H4R7A162	CAP E 4.7UF-50V	
C2474	F2A1C101A159	CAP E 100UF-16V	
C2475	TCJ2VB1H103K	CAP C .01UF-K-50V	
C2507	F2A1C101A159	CAP E 100UF-16V	
C2513	TCJ2VB1C104K	CAP C .1UF-K-16V	
C2518	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3001	F2A1C101A159	CAP E 100UF-16V	
C3002	ECA1CM470B	CAP E 47UF/16V	
C3009	ECEA1CKA101B	CAP E 100UF-16V	
C3011	ECEA1CN100UB	CAP E 10UF-16V	
C3012	ECEA1CN100UB	CAP E 10UF-16V	
C3013	ECEA1CN100UB	CAP E 10UF-16V	
C3014	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3015	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3016	ECEA1CN100UB	CAP E 10UF-16V	
C3017	ECEA1CN100UB	CAP E 10UF-16V	
C3018	ECEA1CN100UB	CAP E 10UF-16V	
C3019	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3020	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3021	F2A1C471A159	CAP E 470UF-16V	
C3022	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C3023	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C3028	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3030	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3031	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3032	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3033	TCJ2VF1H103Z	CAP C .01UF-Z-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C3034	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3035	F2A1C101A159	CAP E 100UF-16V	
C3036	F2A1C101A159	CAP E 100UF-16V	
C3037	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3038	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3039	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3040	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C3043	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3044	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3045	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3046	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3047	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3048	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3049	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3050	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3051	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3052	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3053	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3054	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3055	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3056	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3057	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3058	TCJ2VB1H103K	CAP C .01UF-K-50V	
C3059	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3060	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3062	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3064	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3065	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3066	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3067	ECEA1CKA101B	CAP E 100UF-16V	
C3068	ECEA1CKA101B	CAP E 100UF-16V	
C3069	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3071	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3072	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3081	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3082	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3083	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3084	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3085	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3086	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3087	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3088	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3089	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3090	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3091	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3092	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3093	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3094	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3095	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3097	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3098	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3099	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3100	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3101	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3102	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3103	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3105	TCJ2VB1H102K	CAP C 1000PF-K-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C3106	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3109	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3110	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3111	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3112	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C3113	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C3114	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C3119	ECEA1CKA100B	CAP E 10UF-16V	
C4335	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C7001	ECJ3YF1E225Z	CAP C 2.2UF-Z-25	
C7002	ECJ3YF1E225Z	CAP C 2.2UF-Z-25V	
C7004	ECA1EHG221B	CAP E 220UF-25V	
C7006	ECA1EHG221B	CAP E 220UF-25V	
C7015	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C7016	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C7017	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C7018	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C7032	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C7033	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C7034	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C7035	TCJ2VF1H104Z	CAP C .1UF-Z-50V	
C7060	ECA1CHG101B	CAP E 100UF-16V	
C7061	ECA1CHG101B	CAP E 100UF-16V	
C7150	F2A1V470A127	CAP E 47UF-35V	
C7165	F2A1V470A127	CAP E 47UF-35V	
		DIODES	
D002	MAZ31500ML	DIODE ZENER	
D003	MAZ31500ML	DIODE ZENER	
D004	MAZ31500ML	DIODE ZENER	
D005	MAZ31500ML	DIODE ZENER	
D081	LN21RCPHL	DIODE LED	
D082	MAZ40560MF	DIODE ZENER	
D083	MAZ40560MF	DIODE ZENER	
D301	MA2C16700E	DIODE	
D302	MAZ41000LF	DIODE ZENER	
D303	TVSRM1V1	DIODE	
D304	MA2C165001VT	DIODE	
D306	MA2C165001VT	DIODE	
D307	MA2C165001VT	DIODE	
D312	MA2C18800E	DIODE	
D313	MA2C18800E	DIODE	
D314	MA2C18800E	DIODE	
D315	MA2C18800E	DIODE	
D331	MA2C165001VT	DIODE	
D334	MA2C165001VT	DIODE	
D335	MA2C165001VT	DIODE	
D339	MA2C18800E	DIODE	
D340	MA2C18800E	DIODE	
D341	MA2C18800E	DIODE	
D342	MA2C18800E	DIODE	
D361	MA2C165001VT	DIODE	
D363	MA2C165001VT	DIODE	
D364	MA2C165001VT	DIODE	
D369	MA2C18800E	DIODE	
D370	MA2C18800E	DIODE	
D371	MA2C18800E	DIODE	
D372	MA2C18800E	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D407	MA3X152K0L	DIODE	
D409	MA3X152K0L	DIODE	
D410	MA3X152K0L	DIODE	
D411	MA3X152K0L	DIODE	
D451	B0EAKC000003	DIODE RECTIFIER	
D452	B0EAKC000003	DIODE RECTIFIER	
D453	B0EAKC000003	DIODE RECTIFIER	
D454	B0EAKC000003	DIODE RECTIFIER	
D455	B0EAKC000003	DIODE RECTIFIER	
D456	B0EAKC000003	DIODE RECTIFIER	
D458	B0EAKL000008	DIODE RECTIFIER	
D465	MAZ40390MF	DIODE ZENER	
D466	MA3X152K0L	DIODE	
D501	D1NL40V70	DIODE	
D502	MAZ31500ML	DIODE ZENER	
D503	B0HBRV000001	DIODE	
D504	MAZ42700MF	DIODE ZENER	
D509	MA2C165001VT	DIODE	
D510	MAZ40680LF	DIODE ZENER	
D511	B0HAHP000014	DIODE	
D512	D1NL40V70	DIODE	⚠
D513	MA2C165001VT	DIODE	
D515	D1NL40V70	DIODE	
D516	EU2YXV0	DIODE	
D519	AU02ZV0	DIODE	
D520	MA3X152K0L	DIODE	
D634	MA2C165001VT	DIODE	
D650	MAZ41100MF	DIODE ZENER	
D651	MAZ41100MF	DIODE ZENER	
D656	MAZ41100MF	DIODE ZENER	
D657	MAZ41100MF	DIODE ZENER	
D659	MAZ41100MF	DIODE ZENER	
D660	MAZ41100MF	DIODE ZENER	
D662	MAZ41100MF	DIODE ZENER	
D663	MAZ41100MF	DIODE ZENER	
D702	D1NL40V70	DIODE	
D801	D3SB80-4101	DIODE	⚠
D802	D4EAB3610002	DIODE	⚠
D815	MA2C165001VT	DIODE	
D816	MA2C70000F	DIODE	
D817	AU01ZV0	DIODE	
D818	MAZ32700LL	DIODE ZENER	
D819	B0BA01000046	DIODE ZENER	⚠
D822	B0AAGM000006	DIODE SWITCHING	
D825	SF5L60U-4000	DIODE	⚠
D827	SF5LC30-4115	DIODE	
D828	SF5LC30-4115	DIODE	
D829	SF5LC30-4115	DIODE	
D830	RL4ZLF-J6	DIODE	
D831	RL4ZLF-J6	DIODE	
D835	B0JAME000052	DIODE	
D837	MA3X152K0L	DIODE	
D870	B0JCME000025	DIODE	
D871	B0JCME000025	DIODE	
D876	B0JCME000025	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D885	**MA2062-BTP**	**DIODE**	
D886	**MA2120-ATP**	**DIODE**	
D887	**MA2062-BTP**	**DIODE**	
D895	**MA2C165001VT**	**DIODE**	
D902	**MA2C18800E**	**DIODE**	
D933	**MA2C18800E**	**DIODE**	
D953	**B0ZAZ0000047**	**DIODE**	
D962	**MA2C18800E**	**DIODE**	
D973	**B0ZAZ0000047**	**DIODE**	
D983	**B0ZAZ0000047**	**DIODE**	
D1002	**MA3X152K0L**	**DIODE**	
D1502	**B0HACW000001**	**DIODE**	
D1503	**MAZ30300LL**	**DIODE ZENER**	⚠
D1504	**B0HACW000001**	**DIODE**	
D1505	**MA2C0290BF**	**DIODE**	
D1506	**MAZ30510HL**	**DIODE**	⚠
D1507	**MAZ30300LL**	**DIODE ZENER**	
D1510	**MAZ30330LL**	**DIODE ZENER**	
D1599	**MA3X152K0L**	**DIODE**	
D2321	**MA3X152K0L**	**DIODE**	
D2323	**MA3X152K0L**	**DIODE**	
D2324	**MA3X152K0L**	**DIODE**	
D3001	**MAZ31100ML**	**DIODE ZENER**	
D3002	**MAZ31100ML**	**DIODE ZENER**	
D3003	**MAZ31100ML**	**DIODE ZENER**	
D3004	**MAZ31100ML**	**DIODE ZENER**	
D3005	**MAZ31100ML**	**DIODE ZENER**	
D3006	**MAZ31100ML**	**DIODE ZENER**	
D3007	**MAZ31100ML**	**DIODE ZENER**	
D3008	**MAZ31100ML**	**DIODE ZENER**	
D3009	**MAZ31100ML**	**DIODE ZENER**	
D3010	**MAZ31100ML**	**DIODE ZENER**	
D3011	**MAZ31100ML**	**DIODE ZENER**	
D3012	**MAZ31100ML**	**DIODE ZENER**	
D3013	**MAZ31100ML**	**DIODE ZENER**	
D3014	**MAZ31100ML**	**DIODE ZENER**	
D3015	**MAZ31100ML**	**DIODE ZENER**	
D3016	**MAZ31100ML**	**DIODE ZENER**	
D3017	**MAZ31100ML**	**DIODE ZENER**	
D3018	**MAZ31100ML**	**DIODE ZENER**	
D3019	**MAZ31100ML**	**DIODE ZENER**	
D3020	**MAZ31100ML**	**DIODE ZENER**	
D3021	**MAZ31100ML**	**DIODE ZENER**	
D3022	**MAZ31100ML**	**DIODE ZENER**	
D3023	**MAZ31100ML**	**DIODE ZENER**	
D3024	**MAZ31100ML**	**DIODE ZENER**	
D3025	**MAZ31100ML**	**DIODE ZENER**	
D3026	**MAZ31100ML**	**DIODE ZENER**	
D3027	**MAZ31100ML**	**DIODE ZENER**	
D3028	**MAZ31100ML**	**DIODE ZENER**	
D3029	**MAZ31100ML**	**DIODE ZENER**	
D3030	**MAZ31100ML**	**DIODE ZENER**	
D3031	**MAZ31100ML**	**DIODE ZENER**	
D3032	**MAZ31100ML**	**DIODE ZENER**	
D7060	**MA3X152K0L**	**DIODE**	
FUSES			

Ref. No.	Part No.	Part Name & Description	Remarks
F801	K5D632AD0002	FUSE 6.3A/125V	⚠
INTEGRATED CIRCUITS			
IC451	C1AA00000521	VERTICAL OUT	
IC701	AN6914S-E1	INT CKT	
IC801	AN8029	INT CKT	⚠
IC802	C0EAS0000025	INT. CKT.	⚠
IC804	B0EBKM000016	DIODE RECTIFIER	
IC805	AN78M12LB	INT CKT	
IC811	0N3171RLF	OPTO COUPLER	⚠
IC871	SI-8050J	INT CKT	
IC872	SI-8090J	INT CKT	
IC873	C0DAAZG00006	INT CKT	
IC880	AN78N12-LB	INT CKT	
IC1101	TVR2AJ157S	MPU EEPROM	
IC1112	TVR2AJ158S	CONVERGENCE EEPROM	
IC1501	AN6562S-E1	INT CKT	
IC2201	AN5849S-E1V	INT CKT	
IC2302	C1AA00000645	INT CKT	
IC2304	BA15218F-E2	INT CKT	
IC2451	NJW1137MPTE1	INT CKT	
IC3001	C1AB00000460	INT. CKT.	
IC3002	AN15852A-VT	INT CKT	
IC7001	C5AA00000108	INT. CKT. (VIDEO)	
IC7002	C5AA00000108	INT. CKT. (VIDEO)	
RM002	PNA4701M05TV	INT CKT	
COILS			
J106	EXCELSA35T	FERRITE BEAD	
J210	EXCELSA35T	FERRITE BEAD	
J211	EXCELSA35T	FERRITE BEAD	
J141	EXCELSA35T	FERRITE BEAD	
L003	ELELN100KA	COIL	
L004	ELELN100KA	COIL	
L006	ELESN100JA	COIL PEAKING 10UH	
L007	ELESN100JA	COIL PEAKING 10UH	
L301	ELEBD101KA	COIL PEAKING 100UH	
L302	ELESN100JA	COIL PEAKING 10UH	
L303	ELESN6R8JA	COIL PEAKING 6.8UH	
L304	ELESN4R7JA	COIL PEAKING 4.7UH	
L304	EXCELSA39V	FERRITE BEAD	
L305	EXCELSA39E	FERRITE BEAD	
L307	EXCELSA39V	FERRITE BEAD	
L323	EXCELSA39V	FERRITE BEAD	
L325	EXCELSA39E	FERRITE BEAD	
L331	ELESN100JA	COIL PEAKING 10UH	
L332	ELESN6R8JA	COIL PEAKING 6.8UH	
L333	G0C560KA0021	COIL PEAKING 56UH	
L334	ELESN4R7KA	COIL PEAKING 4.7UH	
L335	ELEBD101KA	COIL PEAKING 100UH	
L337	G0C560KA0021	COIL PEAKING 56UH	
L361	ELEBD101KA	COIL PEAKING 100UH	
L362	ELESN100JA	COIL PEAKING 10UH	
L363	ELESN150JA	COIL PEAKING 15UH	
L364	ELESN4R7JA	COIL PEAKING 4.7UH	
L500	TALL08TR82MA	COIL	
L501	EXCELSA35T	FERRITE BEAD	

Ref. No.	Part No.	Part Name & Description	Remarks
L510	EXCELDR25V	FERRITE BEAD	
L511	EXCELDR25V	FERRITE BEAD	
L515	EXCELDR25V	FERRITE BEAD	
L516	EXCELDR25V	FERRITE BEAD	
L555	ELH5L718	COIL	
L701	ELESN100KA	COIL PEAKING 10UH	
L702	EXCELSA35T	FERRITE BEAD	
L703	ELC18B152L	FILTER	
L704	ELC18B151G	FILTER	
L801	ELF18D650M	CHOKE AC LINE	⚠
L802	ELF21N035A	LINE FILTER	⚠
L805	EXCELDR25V	FERRITE BEAD	
L806	EXCELDR25V	FERRITE BEAD	
L808	EXCELDR35V	FERRITE BEAD	
L810	EXCELDR25V	FERRITE BEAD	
L811	EXCELDR25V	FERRITE BEAD	
L815	EXCELSA39E	FERRITE BEAD	
L816	EXCELSA39E	FERRITE BEAD	
L817	TALL08T680KA	COIL	
L819	EXCELDR35V	FERRITE BEAD	
L820	EXCELDR35V	FERRITE BEAD	
L821	EXCELDR35V	FERRITE BEAD	
L825	TALL08T330KA	COIL	
L826	TALL08T330KA	COIL	
L827	TALL08T330KA	COIL	
L876	G0ZZ00001909	INT CKT	
L879	G0ZZ00001909	INT CKT	
L880	G0ZZ00001909	INT CKT	
L885	ELELN470JA	COIL 47UH	
L886	EXCELDR35V	FERRITE BEAD	
L887	EXCELDR35V	FERRITE BEAD	
L888	TALL08T680KA	COIL	
L889	ELEKN101KA	COIL EPAKING 100UH	
L890	ELEKN101KA	COIL PEAKING 100UH	
L892	EXCELDR35V	FERRITE BEAD	
L893	EXCELDR35V	FERRITE BEAD	
L894	EXCELDR35V	FERRITE BEAD	
L895	TALL08T220KA	TRANSFORMER LINE FILTER	
L901	EXCELSA35T	FERRITE BEAD	
L902	EXCELSA35T	FERRITE BEAD	
L903	EXCELSA35T	FERRITE BEAD	
L931	ELESN100JA	COIL PEAKING 10UH	
L933	EXCELSA35T	FERRITE BEAD	
L934	EXCELSA35T	FERRITE BEAD	
L935	EXCELSA35T	FERRITE BEAD	
L961	EXCELSA35T	FERRITE BEAD	
L962	EXCELSA35T	FERRITE BEAD	
L963	EXCELSA35T	FERRITE BEAD	
L1101	ELESN100JA	COIL PEAKING 10UH	
L2201	ELESN100JA	COIL PEAKING 10UH	
L2331	ELC12E390	COIL	
L2332	ELC12E390	COIL	
L2334	EXCELDR35V	FERRITE BEAD	
L2335	EXCELDR35V	FERRITE BEAD	
L2341	TALL08T330KA	COIL	
L2342	TALL08T330KA	COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
L2502	ELESN100JA	COIL PEAKING 10UH	
L3003	ELESN102JA	COIL PEAKING 1000UH	
L3006	ELESN102JA	COIL PEAKING 1000UH	
L3008	ELESN560JA	COIL PEAKING 56UH	
L3009	ELESN100JA	COIL PEAKING 10UH	
L3010	ELESN560JA	COIL PEAKING 56UH	
L3011	ELESN100JA	COIL PEAKING 10UH	
L3012	ELJPA2R2MF	CHIP INDUCTOR 2.2UH	
L3013	ELJPA100KF	CHIP INDUCTOR 10UH	
L7001	EXCELSA39E	FERRITE BEAD	
L7002	EXCELSA39E	FERRITE BEAD	
L7003	EXCELSA39E	FERRITE BEAD	
L7004	EXCELSA39E	FERRITE BEAD	
L7005	EXCELSA39E	FERRITE BEAD	
L7006	EXCELSA39E	FERRITE BEAD	
TRANSISTORS			
Q031	2SD601ARTX	TRANSISTOR	
Q301	2SC1473A	TRANSISTOR	
Q302	2SC3526H	TRANSISTOR	
Q303	2SC1473A	TRANSISTOR	
Q331	2SC3526H	TRANSISTOR	
Q353	2SC3942LB	TRANSISTOR	
Q354	B1BAAN000025	TRANSISTOR	
Q355	B1BCAN000004	TRANSISTOR	
Q361	2SC3311ATA	TRANSISTOR	
Q362	2SC3311ATA	TRANSISTOR	
Q363	2SC3526H	TRANSISTOR	
Q364	2SA1309ATA	TRANSISTOR	
Q365	2SC3311ATA	TRANSISTOR	
Q366	2SC3311ATA	TRANSISTOR	
Q368	2SA1309ATA	TRANSISTOR	
Q373	2SC3942LB	TRANSISTOR	
Q374	B1BAAN000025	TRANSISTOR	
Q375	B1BCAN000004	TRANSISTOR	
Q393	2SC3942LB	TRANSISTOR	
Q394	B1BAAN000025	TRANSISTOR	
Q395	B1BCAN000004	TRANSISTOR	
Q406	2SD601ARTX	TRANSISTOR	
Q501	B1CEML000001	TRANSISTOR	
Q502	2SK2847LBMAT	TRANSISTOR	
Q503	2SD601ARTX	TRANSISTOR	
Q509	2SC1473QR	TRANSISTOR	
Q510	2SC1473QR	TRANSISTOR	
Q512	2SD601ARTX	TRANSISTOR	
Q513	2SD601ARTX	TRANSISTOR	
Q551	B1BAJW000001	TRANSISTOR	
Q606	2SD601ARTX	TRANSISTOR	
Q701	2SK2538000LB	TRANSISTOR	
Q801	2SK2917LB	TRANSISTOR	
Q802	2SD601ARTX	TRANSISTOR	
Q803	2SB709ARTX	TRANSISTOR	
Q854	2SA19610QAHW	TRANSISTOR	
Q901	2SB1321ARA	TRANSISTOR	
Q903	2SA720TA	TRANSISTOR	
Q904	2SD1992ARA	TRANSISTOR	
Q905	2SC1318ATA	TRANSISTOR	
Q906	2SC1318ATA	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q907	2SA720TA	TRANSISTOR	
Q931	2SD601ARTX	TRANSISTOR	
Q932	2SD601ARTX	TRANSISTOR	
Q933	2SD601ARTX	TRANSISTOR	
Q934	2SA720TA	TRANSISTOR	
Q935	2SC1318ATA	TRANSISTOR	
Q936	2SC1318ATA	TRANSISTOR	
Q937	2SA720TA	TRANSISTOR	
Q938	2SB1321ARA	TRANSISTOR	
Q941	2SD1992ARA	TRANSISTOR	
Q944	2SD601ARTX	TRANSISTOR	
Q945	2SB709ARTX	TRANSISTOR	
Q951	2SC3311ATA	TRANSISTOR	
Q952	2SC3311ATA	TRANSISTOR	
Q953	2SC3311ATA	TRANSISTOR	
Q955	2SA1248SRA	TRANSISTOR	
Q956	2SC3116SRA	TRANSISTOR	
Q957	2SA1248SRA	TRANSISTOR	
Q958	2SC3116SRA	TRANSISTOR	
Q959	2SA1248SRA	TRANSISTOR	
Q960	2SC3116SRA	TRANSISTOR	
Q961	2SB1321ARA	TRANSISTOR	
Q964	2SD1992ARA	TRANSISTOR	
Q965	2SA720TA	TRANSISTOR	
Q966	2SC1318ATA	TRANSISTOR	
Q967	2SC1318ATA	TRANSISTOR	
Q968	2SA720TA	TRANSISTOR	
Q1503	2SA1309ATA	TRANSISTOR	
Q1504	B1BAAV000003	TRANSISTOR	
Q1505	2SC3311ATA	TRANSISTOR	
Q2301	2SB709ARTX	TRANSISTOR	
Q2302	2SB709ARTX	TRANSISTOR	
Q2304	2SD601ARTX	TRANSISTOR	
Q2306	UN2215TX	TRANSISTOR	
Q2307	2SB709ARTX	TRANSISTOR	
Q2313	2SD601ARTX	TRANSISTOR	
Q2314	2SD601ARTX	TRANSISTOR	
Q2451	2SD601ARTX	TRANSISTOR	
Q2452	2SD601ARTX	TRANSISTOR	
Q2501	2SD601ARTX	TRANSISTOR	
Q2502	2SD601ARTX	TRANSISTOR	
Q2503	2SD601ARTX	TRANSISTOR	
Q2504	2SB709ARTX	TRANSISTOR	
Q2505	2SB709ARTX	TRANSISTOR	
Q2506	2SB709ARTX	TRANSISTOR	
Q2507	2SB709ARTX	TRANSISTOR	
Q2508	2SB709ARTX	TRANSISTOR	
Q2509	2SB709ARTX	TRANSISTOR	
Q2510	2SB709ARTX	TRANSISTOR	
Q3002	2SD601ARTX	TRANSISTOR	
Q3003	2SD601ARTX	TRANSISTOR	
Q3005	2SD601ARTX	TRANSISTOR	
Q3006	2SD601ARTX	TRANSISTOR	
Q3007	2SD601ARTX	TRANSISTOR	
Q3008	2SD601ARTX	TRANSISTOR	
Q3011	2SB709ARTX	TRANSISTOR	
Q3012	2SD601ARTX	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q3013	2SD601ARTX	TRANSISTOR	
Q3014	2SD601ARTX	TRANSISTOR	
Q3015	2SD601ARTX	TRANSISTOR	
Q7006	2SD601ARTX	TRANSISTOR	
Q7007	2SD601ARTX	TRANSISTOR	
Q7060	2SB709ARTX	TRANSISTOR	
Q7061	2SD601ARTX	TRANSISTOR	
RELAYS			
RL801	K6B1ADA00010	RELAY	⚠
RL802	K6B1ADA00010	RELAY	⚠
RESISTORS			
JS063	ERDS2TJ124T	RES C 120K-J-1/4W	
R001	ERJ6GEYJ221V	RES M 220-J-1/10W	
R002	ERJ6GEYJ221V	RES M 220-J-1/10W	
R013	ERG1SJ273P	RES M 27K-J-1W	
R015	ERG1SJ273P	RES M 27K-J-1W	
R016	ERJ6GEYJ221V	RES M 220-J-1/10W	
R017	ERJ6GEYJ221V	RES M 220-J-1/10W	
R026	ERJ6GEYJ101V	RES M 100-J-1/10W	
R031	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R032	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R033	ERJ6GEYJ220V	RES M 22-J-1/10W	
R072	ERDS2TJ101T	RES C 100-J-1/4W	
R073	ERDS2TJ471T	RES C 470-J-1/4W	
R080	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R081	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R082	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R083	ERDS2TJ512T	RES C 5.1K-J-1/4W	
R084	ERDS2TJ912T	RES C 9.1K-J-1/4W	
R086	ERDS2TJ102T	RES C 1K-J-1/4W	
R087	ERDS2TJ331T	RES C 330-J-1/4W	
R301	ERDS1FJ394P	RES C 390K-J-1/2W	
R302	ERDS2TJ151T	RES C 150-J-1/4W	
R303	ER0S2THF2200	RES M 22-F-1/4W	
R304	ERDS2TJ334T	RES C 330K-J-1/4W	
R305	ER0S2THF2200	RES M 22-F-1/4W	
R306	ER0S2THF4700	RES M 47-F-1/4W	
R307	ERDS2TJ220T	RES C 22-J-1/4W	
R308	ERDS2TJ334T	RES C 330K-J-1/4W	
R310	ERDS2TJ183T	RES C 18K-J-1/4W	
R311	ERDS2TJ470T	RES C 47-J-1/4W	
R312	ERG7ZJ272	RES M 2.7K-J-7W	
R315	ERDS2TJ563T	RES C 56K-J-1/4W	
R316	ERDS2TJ821T	RES C 820-J-1/4W	
R319	ERG12SJ101P	RES M 100-J-1W	
R320	ERDS1FJ330P	RES C 33-J-1/2W	
R321	ERDS1FJ330P	RES C 33-J-1/2W	
R322	ERG12SJ101P	RES M 100-J-1W	
R325	ERDS2TJ473T	RES C 47K-J-1/4W	
R327	ERC12GK331D	RES C 330-K-1/2W	
R328	ERDS1TJ104T	RES C 100K-J-1/2W	
R331	ER0S2THF2200	RES M 22-F-1/4W	
R332	ERDS2TJ151T	RES C 150-J-1/4W	
R333	ER0S2THF2200	RES M 22-F-1/4W	
R334	ERDS2TJ220T	RES C 22-J-1/4W	
R335	ER0S2THF4700	RES M 47-F-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R345	ERDS2TJ470T	RES C 47-J-1/4W	
R347	ERG7ZJ272	RES M 2.7K-J-7W	
R348	ERDS2TJ563T	RES C 56K-J-1/4W	
R349	ERDS2TJ821T	RES C 820-J-1/4W	
R350	ERG12SJ101P	RES M 100-J-1W	
R351	ERDS1FJ330P	RES C 33-J-1/2W	
R352	ERDS1FJ330P	RES C 33-J-1/2W	
R353	ERG12SJ101P	RES M 100-J-1W	
R354	ERDS2TJ473T	RES C 47K-J-1/4W	
R356	ERC12GK331D	RES C 330-K-1/2W	
R357	ERDS1TJ104T	RES C 100K-J-1/2W	
R361	ER0S2THF1302	RES M 13K-F-1/4W	
R362	ER0S2THF1002	RES M 10K-F-1/4W	
R363	ERDS2TJ220T	RES C 22-J-1/4W	
R364	ERDS2TJ102T	RES C 1K-J-1/4W	
R365	ERDS2TJ221T	RES C 220-J-1/4W	
R366	ERDS2TJ151T	RES C 150-J-1/4W	
R367	ER0S2THF2200	RES M 22-F-1/4W	
R368	ER0S2THF2200	RES M 22-F-1/4W	
R369	ERDS2TJ472T	RES C 4.7K-J-1/4	
R371	ER0S2THF4700	RES M 47-F-1/4W	
R372	ER0S2THF82R0	RES M 82.0-F-1/4W	
R375	ERDS2TJ470T	RES C 47-J-1/4W	
R376	ERG7ZJ272	RES M 2.7K-J-7W	
R379	ERDS2TJ563T	RES C 56K-J-1/4W	
R380	ERDS2TJ821T	RES C 820-J-1/4W	
R383	ERG12SJ101P	RES M 100-J-1W	
R384	ERDS1FJ330P	RES C 33-J-1/2W	
R385	ERDS1FJ330P	RES C 33-J-1/2W	
R386	ERG12SJ101P	RES M 100-J-1W	
R389	ERDS2TJ473T	RES C 47K-J-1/4W	
R390	ERC12GK331D	RES C 330-K-1/2W	
R391	ERDS1TJ104T	RES C 100K-J-1/2W	
R392	ER0S2THF8201	RES M 8.2K-F-1/4W	
R393	ER0S2THF8201	RES M 8.2K-F-1/4W	
R394	ERDS2TJ102T	RES C 1K-J-1/4W	
R395	ERDS2TJ221T	RES C 220-J-1/4W	
R396	ERDS2TJ472T	RES C 4.7K-J-1/4	
R397	ER0S2THF1201	RES M 1.2K-F-1/4W	
R398	ER0S2THF3300	RES M 33-F-1/4W	
R408	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R409	ERDS2TJ563T	RES C 56K-J-1/4W	
R410	ERJ6GEYJ224V	RES M 220K-J-1/10W	
R411	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R412	ERJ6GEYJ682V	RES M 6.8K-J-1/10W	
R415	ERG3FJ331H	RES M 330-J-3W	
R421	ERJ6ENF2702V	RES M 27K-F-1/10W	
R422	ERJ6ENF1000V	RES M 100-F-1/10W	
R423	ERJ6ENF5601V	RES M 5.6K-F-1/10W	
R425	ERDS1FJ1R0T	RES C 1.0-J-1/2W	
R426	ERJ6ENF1502V	RES M 15K-F-1/10W	
R428	ERJ6ENF1002V	RES M 10K-F-1/10W	
R434	ERX12SJ1R8V	RES M 1.8-J-2W	
R435	ERX12SJ1R8V	RES M 1.8-J-2W	
R464	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R470	ERDS2TJ331T	RES C 330-J-1/4W	
R471	ERDS2TJ331T	RES C 330-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R472	ERDS2TJ331T	RES C 330-J-1/4W	
R501	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R502	ERJ6GEYJ680V	RES M 68-J-1/10W	
R503	ERG2FJ180H	RES M 18-J-2W	
R504	ERG3FJ271H	RES M 270-J-3W	
R505	ERG1SJ120P	RES M 12-J-1W	
R506	ERX1SJR47P	RES M .47-J-1W	
R512	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R513	ERDS2TJ471T	RES C 470-J-1/4W	
R514	ER0S2THF3322	RES M 33.2-F-1/4W	
R515	ER0S2THF4702	RES M 47K-F-1/4W	
R516	ERJ6GEYJ101V	RES M 100-J-1/10W	
R517	ERDS2TJ103T	RES C 10K-J-1/4W	
R518	ERX12SJR22V	RES M .22-J-1/2	
R519	ERQ12HKR22P	RES F .22-K-1/2W	
R520	ERQ12HJ330P	RES F 33-J-1/2W	⚠
R521	ER0S2THF2612	RES M 26.1K-F-1/4W	⚠
R522	ER0S2THF7151	RES M 7.15K-F-1/4W	⚠
R523	ERDS2TJ275T	RES C 2.7MEG-J-1/4W	
R525	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R534	ER0S2THF1203	RES M 120K-F-1/4W	
R535	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R536	ERDS2TJ101T	RES C 100-J-1/4W	
R537	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R538	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R539	ERDS2TJ393T	RES C 39K-J-1/4W	
R541	ERDS2TJ563T	RES C 56K-J-1/4W	
R550	ER0S2THF1002	RES M 10K-F-1/4W	
R560	ERJ6GEYJ101V	RES M 100-J-1/10W	
R561	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R562	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R621	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R622	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R624	ERJ6GEYJ101V	RES M 100-J-1/10W	
R643	ERJ6GEYJ101V	RES M 100-J-1/10W	
R653	ERDS2TJ101T	RES C 100-J-1/4W	
R654	ERDS2TJ184T	RES C 180K-J-1/4W	
R655	ERDS2TJ184T	RES C 180K-J-1/4W	
R704	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R706	ERDS1FJ680T	RES C 68-J-1/2W	
R708	ERF5AK4R7H	RES W 4.7-K-5W	
R800	ERU5TCK1R5T	RES F 1.5-K-5W	⚠
R805	ERDS2TJ101T	RES C 100-J-1/4W	
R808	ERX12SZJR12P	RES M .12-J-1/2W	
R809	ERJ6GEYJ225V	RES M 2.2M-J-1/10W	
R810	ERX12SZJR12P	RES M .12-J-1/2W	
R811	ERX12SZJR12P	RES M .12-J-1/2W	
R812	ERDS2TJ103T	RES C 10K-J-1/4W	
R813	ERDS1FJ561T	RES C 560-J-1/2	
R814	ERDS2TJ4R7T	RES C 4.7-J-1/4W	
R815	ERJ6GEYJ301V	RES M 300-J-1/10W	
R816	ERDS2TJ471T	RES C 470-J-1/4W	
R817	ERJ6ENF2001V	RES M 2K-F-1/10W	
R818	ERDS1FJ100T	RES C 10-J-1/2W	
R820	ERDS1FJ470T	RES C 47-J-1/2W	

Ref. No.	Part No.	Part Name & Description	Remarks
R822	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R832	ERD75TAJ825	RES C 8.2MEG-J-3/4W	⚠
R833	ERJ6GEYJ101V	RES M 100-J-1/10W	
R835	ERDS2TJ101T	RES C 100-J-1/4W	
R836	ERJ6GEYJ101V	RES M 100-J-1/10W	
R839	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R840	ERJ6GEYJ101V	RES M 100-J-1/10W	
R846	ERDS2TJ223T	RES C 22K-J-1/4W	
R847	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R857	ERX1SJ1R0P	RES M 1.0-J-1W	
R858	ERX1SJ1R0P	RES M 1.0-J-1W	
R859	ERDS2TJ103T	RES C 10K-J-1/4W	
R860	ERDS1FJ222T	RES C 2200-J-1/2W	
R862	ERG3FJ333H	RES M 33K-J-3W	
R865	ERJ6GEYJ153V	RES M 15K-J-1/10W	
R866	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R867	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R880	TSF39402	FUSE 4.0A/125V	
R881	TSF39402	FUSE 4.0A/125V	
R888	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R889	ERJ6ENF1581V	RES M 158-F-1/10W	
R895	ERDS2TJ560T	RES C 56-J-1/4W	
R901	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R902	ERDS2TJ103T	RES C 10K-J-1/4W	
R903	ERDS2TJ683T	RES C 68K-J-1/4W	
R904	ERDS2TJ683T	RES C 68K-J-1/4W	
R905	ERDS2TJ103T	RES C 10K-J-1/4W	
R906	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R907	ERDS1FVJ390T	RES C 39-J-1/2W	
R908	ERDS1FVJ390T	RES C 39-J-1/2W	
R909	ERDS1FVJ8R2T	RES C 8.2-J-1/2W	
R910	ERDS2TJ8R2T	RES C 8.2-J-1/4W	
R911	ERG3SJS221H	RES M 220-J-3W	
R912	ERDS2TJ681T	RES C 680-J-1/4W	
R913	ERDS1FVJ152T	RES C 1.5K-J-1/2W	
R914	ERDS1FVJ152T	RES C 1.5K-J-1/2W	
R915	ERQ14AJ220P	RES F 22-J-1/4W	
R916	ERQ14AJ220P	RES F 22-J-1/4W	
R917	ERQ14AJ100P	RES F 10-J-1/4W	
R925	ERDS2TJ151T	RES C 150-J-1/4W	
R926	ERDS2TJ151T	RES C 150-J-1/4W	
R928	ERQ14AJ220P	RES F 22-J-1/4W	
R929	ERDS2TJ101T	RES C 100-J-1/4W	
R931	ERJ6GEYJ101V	RES M 100-J-1/10W	
R932	ERJ6GEYJ393V	RES M 39K-J-1/10W	
R933	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R934	ERJ6GEYJ153V	RES M 15K-J-1/10W	
R935	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R936	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R937	ERJ6GEYJ151V	RES M 150-J-1/10W	
R938	ERJ6GEYJ121V	RES M 120-J-1/10W	
R939	ERJ6GEYJ470V	RES M 47-J-1/10W	
R942	ERDS1FVJ152T	RES C 1.5K-J-1/2W	
R943	ERDS1FVJ152T	RES C 1.5K-J-1/2W	
R944	ERDS2TJ471T	RES C 470-J-1/4W	
R945	ERDS2TJ471T	RES C 470-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R946	ERQ14AJ100P	RES F 10-J-1/4W	
R947	ERQ14AJ220P	RES F 22-J-1/4W	
R948	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R949	ERDS2TJ103T	RES C 10K-J-1/4W	
R950	ERDS2TJ683T	RES C 68K-J-1/4W	
R951	ERDS2TJ683T	RES C 68K-J-1/4W	
R952	ERDS2TJ103T	RES C 10K-J-1/4W	
R953	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R954	ERDS1FVJ390T	RES C 39-J-1/2W	
R955	ERDS1FVJ390T	RES C 39-J-1/2W	
R956	ERDS1FVJ8R2T	RES C 8.2-J-1/2W	
R957	ERDS2TJ8R2T	RES C 8.2-J-1/4W	
R958	ERG3SJS221H	RES M 220-J-3W	
R959	ERDS2TJ471T	RES C 470-J-1/4W	
R961	ERDS2FJ122T	RES C 1.2K-J-1/2W	
R962	ERDS2TJ103T	RES C 10K-J-1/4W	
R963	ERDS2TJ683T	RES C 68K-J-1/4W	
R964	ERDS2TJ683T	RES C 68K-J-1/4W	
R965	ERDS2TJ103T	RES C 10K-J-1/4W	
R966	ERDS2TJ122T	RES C 1.2K-J-1/4W	
R967	ERDS1FVJ390T	RES C 39-J-1/2W	
R968	ERDS1FVJ390T	RES C 39-J-1/2W	
R969	ERDS1FVJ8R2T	RES C 8.2-J-1/2W	
R970	ERDS2TJ8R2T	RES C 8.2-J-1/4W	
R971	ERG3SJS221H	RES M 220-J-3W	
R972	ERDS2TJ101T	RES C 100-J-1/4W	
R973	ERDS1FVJ152T	RES C 1.5K-J-1/2W	
R974	ERDS1FVJ152T	RES C 1.5K-J-1/2W	
R975	ERQ14AJ100P	RES F 10-J-1/4W	
R976	ERQ14AJ220P	RES F 22-J-1/4W	
R978	ERQ14AJ220P	RES F 22-J-1/4W	
R981	ERJ6GEYJ182V	RES M 1.8K-J-1/10W	
R983	ERJ6GEYJ470V	RES M 47-J-1/10W	
R984	ERJ6GEYJ330V	RES M 33-J-1/10W	
R985	ERJ6GEYJ330V	RES M 33-J-1/10W	
R1103	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1106	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1107	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1108	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1109	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1110	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1112	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1113	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1114	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1502	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R1503	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1504	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1505	ERDS2TJ102T	RES C 1K-J-1/4W	
R1506	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1507	ERG3SJD152L	RES M 1.5K-J-3W	
R1508	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R1509	ERDS2TJ102T	RES C 1K-J-1/4W	
R1510	ERG2SJD333L	RES M 33K-J-2W	
R1511	ERG2SJD333L	RES M 33K-J-2W	
R1512	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R1514	ERG2SJD333L	RES M 33K-J-2W	
R1515	ERJ6ENF1001V	RES M 1K-F-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R1516	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1517	ERJ6ENF3571V	RES M 3.57K-F-1/10W	
R1518	ERG2SJD333L	RES M 33K-J-2W	
R1519	ERDS2TJ101T	RES C 100-J-1/4W	
R1520	ERDS2TJ221T	RES C 220-J-1/4W	
R1521	ER0S2THF1500	RES M 150-F-1/4W	
R1522	ERC12GK103D	RES C 10K-K-1/2W	
R1523	ERDS2TJ104T	RES C 100K-J-1/4W	
R1524	ER0S2THF1401	RES M 140-F-1/4W	
R1527	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1528	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R1529	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1532	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R1542	ERG2SJD333L	RES M 33K-J-2W	
R1544	ERJ6GEYJ471V	RES M 470-J-1/10W	
R1546	ERJ6GEYJ221V	RES M 220-J-1/10W	
R1599	ERJ6ENF9761V	RES M 9760-F-1/10W	
R2203	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R2206	ERDS2TJ102T	RES C 1K-J-1/4W	
R2207	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2221	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2301	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2302	ERJ6GEYJ392V	RES M 3.9K-J-1/10W	
R2303	ERJ6GEYJ271V	RES M 270-J-1/10W	
R2304	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2305	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2307	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2308	ERJ6GEYJ183V	RES M 18K-J-1/10W	
R2313	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2314	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2315	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2316	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2324	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2325	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2326	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2327	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2328	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R2329	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2332	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2333	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2334	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R2335	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R2336	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2337	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2338	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2339	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2342	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2345	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R2346	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2348	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2349	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2351	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2352	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2353	ERJ6ENF4701V	RES M 4.7K-F-1/10W	
R2354	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2355	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2356	ERJ6GEYJ223V	RES M 22K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R2357	ERJ6ENF1303V	RES M 130K-F-1/10W	
R2358	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2359	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2360	ERJ6ENF4701V	RES M 4.7K-F-1/10W	
R2361	ERJ6ENF1202V	RES M 12K-F-1/10	
R2362	ERJ12YJ101U	RES M 100-J-1/2W	
R2363	ERJ6ENF5232V	RES M 5.32K-F-1/10W	
R2364	ERJ6ENF1202V	RES M 12K-F-1/10	
R2365	ERJ6ENF1202V	RES M 12K-F-1/10	
R2366	ERJ6ENF1202V	RES M 12K-F-1/10	
R2367	ERJ12YJ101U	RES M 100-J-1/2W	
R2368	ERJ6ENF5232V	RES M 5.32K-F-1/10W	
R2371	ERJ6ENF1201V	RES M 1.2K-F-1/10WW / PT-53WX53G, PT-47WX53G, / PT-47WXC43G, PT-4743G, / PT-56WX53G	
R2372	ERJ6ENF1201V	RES M 1.2K-F-1/10WW / PT-53WX53G, PT-47WX53G, / PT-47WXC43G, PT-4743G, / PT-56WX53G	
R2451	ERJ6GEYJ681V	RES M 680-J-1/10W	
R2452	ERJ6GEYJ681V	RES M 680-J-1/10W	
R2456	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2457	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2460	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2461	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2501	ERJ6ENF1200V	RES M 120-F-1/10W	
R2502	ERJ6ENF2200V	RES M 220-F-1/10W	
R2503	ERJ6ENF2200V	RES M 220-F-1/10W	
R2504	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2505	ERJ6ENF15R0V	RES M 15.0-F-1/10W	
R2506	ERJ6ENF15R0V	RES M 15.0-F-1/10W	
R2507	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2508	ERJ6ENF2200V	RES M 220-F-1/10W	
R2509	ERJ6ENF1200V	RES M 120-F-1/10W	
R2510	ERJ6ENF2200V	RES M 220-F-1/10W	
R2511	ERJ6ENF1200V	RES M 120-F-1/10W	
R2512	ERJ6ENF2200V	RES M 220-F-1/10W	
R2513	ERJ6ENF15R0V	RES M 15.0-F-1/10W	
R2514	ERJ6ENF2200V	RES M 220-F-1/10W	
R2515	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2519	ERJ6GEYJ560V	RES M 56-J-1/10W	
R2520	ERJ6GEYJ560V	RES M 56-J-1/10W	
R2537	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2538	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2539	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2541	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2542	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2543	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R2568	ERJ6ENF6801V	RES M 6.8K-F-1/10W	
R2569	ERJ6ENF8201V	RES M 8.2K-F-1/10W	
R2570	ERJ6GEYJ560V	RES M 56-J-1/10W	
R2573	ERJ6GEYJ201V	RES M 200-J-1/10W	
R2580	ERJ6GEYJ201V	RES M 200-J-1/10W	
R2587	ERJ6GEYJ201V	RES M 200-J-1/10W	
R3001	ERDS2TJ331T	RES C 330-J-1/4W	
R3002	ERDS2TJ331T	RES C 330-J-1/4W	
R3003	ERJ6GEYJ471V	RES M 470-J-1/10W	
R3004	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3005	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3006	ERJ6GEYJ102V	RES M 1K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R3007	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3008	ERJ6GEYJ750V	RES M 75-J-1/10W	
R3009	ERDS2TJ221T	RES C 220-J-1/4W	
R3010	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3011	ERDS2TJ221T	RES C 220-J-1/4W	
R3012	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R3013	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3014	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R3015	ERDS2TJ221T	RES C 220-J-1/4W	
R3016	ERDS2TJ562T	RES C 5.6K-J-1/4W	
R3017	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3018	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R3019	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R3020	ERDS2TJ221T	RES C 220-J-1/4W	
R3021	ERDS2TJ562T	RES C 5.6K-J-1/4W	
R3022	ERDS2TJ221T	RES C 220-J-1/4W	
R3023	ERDS2TJ562T	RES C 5.6K-J-1/4W	
R3024	ERDS2TJ562T	RES C 5.6K-J-1/4W	
R3025	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R3026	ERDS2TJ221T	RES C 220-J-1/4W	
R3027	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R3028	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3029	ERDS2TJ221T	RES C 220-J-1/4W	
R3030	ERDS2TJ221T	RES C 220-J-1/4W	
R3031	ERJ6GEYJ561V	RES M 560-J-1/10W	
R3032	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3033	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3034	ERJ6ENF3600V	RES M 360-F-1/10W	
R3035	ERJ6ENF3300V	RES M 330-F-1/10W	
R3036	ERJ6ENF3300V	RES M 330-F-1/10W	
R3037	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3038	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3039	ERJ6GEYJ750V	RES M 75-J-1/10W	
R3040	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3041	ERDS2TJ221T	RES C 220-J-1/4W	
R3042	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3043	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3044	ERDS2TJ221T	RES C 220-J-1/4W	
R3045	ERJ6ENF3600V	RES M 360-F-1/10W	
R3046	ERDS2TJ221T	RES C 220-J-1/4W	
R3047	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3048	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3049	ERJ6GEYJ561V	RES M 560-J-1/10W	
R3050	ERJ6ENF3300V	RES M 330-F-1/10W	
R3051	ERJ6ENF3600V	RES M 360-F-1/10W	
R3052	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3053	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3054	ERJ6GEYJ560V	RES M 56-J-1/10W	
R3055	ERJ6GEYJ220V	RES M 22-J-1/10W	
R3056	ERJ6GEYJ561V	RES M 560-J-1/10W	
R3057	ERJ6GEYJ750V	RES M 75-J-1/10W	
R3058	ERJ6GEYJ560V	RES M 56-J-1/10W	
R3059	ERJ6GEYJ560V	RES M 56-J-1/10W	
R3060	ERJ6GEYJ560V	RES M 56-J-1/10W	
R3061	ERJ6GEYJ560V	RES M 56-J-1/10W	
R3062	ERJ6GEYJ560V	RES M 56-J-1/10W	
R3063	ERJ6GEYJ221V	RES M 220-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R3064	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3065	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3069	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3070	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3071	ERJ6GEYJ561V	RES M 560-J-1/10W	
R3072	ERJ6GEYJ561V	RES M 560-J-1/10W	
R3073	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3075	ERJ6GEYJ561V	RES M 560-J-1/10W	
R3078	ERJ6ENF3300V	RES M 330-F-1/10W	
R3079	ERJ6ENF3600V	RES M 360-F-1/10W	
R3081	ERJ6GEYJ331V	RES M 330-J-1/10W	
R3082	ERJ6GEYJ331V	RES M 330-J-1/10W	
R3083	ERJ6GEYJ331V	RES M 330-J-1/10W	
R3084	ERJ6GEYJ331V	RES M 330-J-1/10W	
R3085	ERJ6GEYJ220V	RES M 22-J-1/10W	
R3087	ERJ6GEYJ220V	RES M 22-J-1/10W	
R3088	ERJ6GEYJ220V	RES M 22-J-1/10W	
R3092	ERJ6GEYJ220V	RES M 22-J-1/10W	
R3094	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3095	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3096	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3099	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3100	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3101	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3102	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3103	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3104	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3105	ERJ6GEYJ271V	RES M 270-J-1/10W	
R3107	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3108	ERDS2TJ221T	RES C 220-J-1/4W	
R3109	ERDS2TJ221T	RES C 220-J-1/4W	
R3110	ERDS2TJ102T	RES C 1K-J-1/4W	
R3111	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3112	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3116	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3120	ERJ6GEYJ271V	RES M 270-J-1/10W	
R3123	ERJ6GEYJ271V	RES M 270-J-1/10W	
R3127	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3128	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3132	ERJ6GEYJ271V	RES M 270-J-1/10W	
R3135	ERJ6GEYJ271V	RES M 270-J-1/10W	
R3157	ERJ6GEYJ271V	RES M 270-J-1/10W	
R7001	ERG2FJ820H	RES M 82-J-2W	
R7002	ERG2FJ121H	RES M 120-J-2W	
R7003	ERG2FJ820H	RES M 82-J-2W	
R7004	ERG2FJ121H	RES M 120-J-2W	
R7005	ERG2FJ820H	RES M 82-J-2W	
R7006	ERG2FJ121H	RES M 120-J-2W	
R7011	ERX2FJ2R2H	RES M 2.2-J-2W	
R7012	ERX2FJ2R2H	RES M 2.2-J-2W	
R7013	ERX2FJ2R2H	RES M 2.2-J-2W	
R7014	ERX2FJ2R2H	RES M 2.2-J-2W	
R7015	ERX2FJ2R2H	RES M 2.2-J-2W	
R7016	ERX2FJ2R2H	RES M 2.2-J-2W	
R7023	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R7024	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R7026	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R7027	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7029	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7030	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7031	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7032	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7034	ERJ6GEYJ273V	RES M 27K-J-1/10W	
R7035	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R7036	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7037	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7038	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R7040	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7041	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7045	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7046	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7047	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7048	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7052	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7055	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7058	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R7059	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R7060	ERX1SJR27P	RES M .27-J-1W	
R7061	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R7062	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7063	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7064	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R7065	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R7066	ERX1SJR27P	RES M .27-J-1W	
SWITCHES			
S010	SKHHDTA010	SWITCH	
S011	SKHHDTA010	SWITCH	
S012	SKHHDTA010	SWITCH	
S013	SKHHDTA010	SWITCH	
S014	SKHHDTA010	SWITCH	
S015	SKHHDTA010	SWITCH	
S016	SKHHDTA010	SWITCH	
TRANSFORMERS			
T501	ETH19K204AZ	TRANSFORMER	
T551	KFT7AA334F	TRANSFORMER FLYBACK	⚠
T801	ETS42AD495AD	TRANSFORMER	⚠
T802	ETP30KB941JG	TRANSFORMER	⚠
OTHERS			
TNR001	ENG36619G	MAIN TUNER	⚠
TNR002	ENG36620G	SUB TUNER	⚠
M001	TSX2AA0381	LINE CORD	⚠
1	TXFCRT24GSER	ASSY PRT (BLUE) / PT-47WX53G, PT-47WXC43G, / PT-4743G, PT-47WX33G	⚠
	TXFCRT25GSER	ASSY PRT (GREEN) / PT-47WX53G, PT-47WXC43G, / PT-4743G, PT-47WX33G	⚠
	TXFCRT26GSER	ASSY PRT (RED) / PT-47WX53G, PT-47WXC43G, / PT-4743G, PT-47WX33G	⚠
	TXFCRT27GSER	ASSY PRT(BLUE) / PT-53WX53G, PT-56WX53G	⚠
	TXFCRT28GSER	ASSY PRT(GREEN) / PT-53WX53G, PT-56WX53G	⚠
	TXFCRT29GSER	ASSY PRT(RED) / PT-53WX53G, PT-56WX53G	⚠
M002	K3B10CA00006	SOCKET CRT	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
2	KDY2ASF83F	YOKE DEFLECTION	⚠
M003	TXF3A01ECV	ASSY DAG GND	
3	TKG2AF020-1	A/B LENS / PT-47WX53G, PT-47WXC43G, / PT-4743G, PT-47WX33G	
	TKG2AF021-1	A/B LENS / PT-53WX53G, PT-56WX53G	
4	TKG2AA50041	MIRROR GLASS PT-56WX53G	
	TKG2AA50091	MIRROR GLASS / PT-47WX53G, PT-47WXC43G, / PT-4743G, PT-47WX33G	
	TKG2AA50111	MIRROR GLASS PT-53WX53G	
5	TMW2AX0041B	BRACKET MIRROR SIDE	
6	TMW2AX0161	BRACKET MIRROR MTG (TOP)	
7	TKG2AD00062	SCREEN PANEL PROTECTIVE / PT-56WX53G	
	TKG2AD00071	SCREEN PANEL PROTECTIVE / PT-47WX53G	
	TKG2AD00091	SCREEN PANEL PROTECTIVE / PT-53WX53G	
	TY-47WX49SK	SCREEN PROTECTIVE PT-4743G	
8	TKG2AH50611	SCREEN FRESNEL PT-53WX53G	
	TKG2AH50681	SCREEN FRESNEL / PT-47WX53G, PT-47WXC43G, / PT-4743G, PT-47WX33G	
	TKG2AH50691	SCREEN FRESNEL PT-56WX53G	
9	TKG2AH50381	SCREEN LENTICULAR PT-53WX53G	
	TKG2AH50461	SCREEN LENTICULAR / PT-47WX53G, PT-47WXC43G, / PT-4743G, PT-47WX33G	
	TKG2AH50531	SCREEN LENTICULAR PT-56WX53G	
M004	TKE2AA00126	FRAME SCREEN PLAT. SIL. / PT-56WX53G	
10	TMW2AX0181	BRACKET SCREEN, CORNER	
11	TMW2AX0132	BRACKET SCREEN	
12	TKU2AC2201S	BACK CABINET / PT-47WX53G, PT-47WXC43G, / PT-4743G, PT-47WX33G	
	TKU2AC2601S	BACK CABINET / PT-53WX53G	
13	TKY2AA3003S	FRONT CABINET / PT-47WX53G	
	TKY2AA3005S	FRONT CABINET / PT-47WXC43G, PT-4743G, / PT-47WX33G	
	TKY2AA3405S	FRONT CABINET / PT-53WX53G	
14	TKB2AA0172S	LOWER CABINET WOOD PTV / PT-47WXC43G, PT-4743G, / PT-47WX33G	
	TKB2AA0201S	LOWER CABINET WOOD PTV / PT-53WX53G	
	TKB2AA0173S	LOWER CABINET WOOD PTV / PT-47WX53G	
15	TKB2AA0192S	CABINET WOOD PTV / PT-56WX53G	
M005	TBL2AH30071	CASTER	
16	TKD2AX2412S	INNER BARRIER BOARD / PT-56WX53G	
	TKD2AX2572S	INNER BARRIER BOARD / PT-53WX53G, PT-47WX53G, / PT-47WXC43G, PT-4743G, / PT-47WX33G	
17	TKU2AA03201	LOWER BACK COVER / PT-53WX53G, PT-47WX53G, / PT-47WXC43G, PT -4743G, / PT-47WX33G	
	TKU2AA03401	LOWER BACK COVER / PT-56WX53G	
18	EASJ6PH05A3	SPEAKER (TWEETER) / PT-53WX53G, PT-56WX53G	
	TAS2AA0022	SPEAKER (TWEETER) / PT-47WX53G	
19	TAS2AA0026	SPEAKER / PT-47WXC43G, PT-4743G, / PT-47WX33G	
	TAS2AA0027	SPEAKER / PT-47WX53G	
	EAST14PL31A6	SPEAKER / PT-53WX53G, PT-56WX53G	
20	TKP2AA0622S	SPEAKER GRILLE / PT-47WXC43G, PT-4743G / PT-47WX33G	
	TKP2AA0626S	SPEAKER GRILLE / PT-53WX53G, PT-47WX53G	
21	TKP2AA0699S	SIDE GRILLE (L) / PT-56WX53G	
22	TKP2AA06910S	SIDE GRILLE (R) / PT-56WX53G	
23	TXFKP02FSER	ASSY CENTER GRILLE / PT-56WX53G	
24	TBM2AA0012	BADGE PANASONIC	
25	TKP2AA0649S	CONTROL PANEL / PT-53WX53G, PT-47WX53G	
	TKP2AA06496S	CONTROL PANEL / PT-47WXC43G, PT-4743G, / PT-47WX33G	
	TKP2AA06492S	CONTROL PANEL PT-56WX53G	
26	TBX2AA0161G	BUTTON 7-KEY / PT-53WX53G, PT-47WX53G, / PT-56WX53G	
27	TKP2AA0681	LED PANEL / PT-53WX53G, PT-47WX53G, / PT-56WX53G	

Ref. No.	Part No.	Part Name & Description	Remarks
28	ENPE2A001	SPLITTER 2RF	
29	TXFKP07GSER	ASSY REAR BRACKET	
30	KFT7CP336F	DISTRIBUTOR	
M006	TXFJIG01SER	EEPROM COPY JIG	
JK1001	TJB2AA0471	TERMINAL FRONT A/V	
JK3001	TJB2AA0311	TERMINAL REAR A/V	
JK5001	DV2R024NKB	EDI CONNECTOR (DVI)	
JK5002	TJB2AA0411	TERMINAL VIDEO	
M007	TMM2AE10171	GROMMET SQUARE	
		ACCESORIES	
M008	TQB2AA0470-1	OWNERS MANUAL	
M009	EUR7603Z90	REMOTE CONTROL / PT-53WX53G, PT-47WX53G, / PT-4743G, PT-56WX53G	
M010	EUR7613Z40	REMOTE CONTROL / PT-47WXC43G, PT-47WX33G	
M011	UR76EC0303A	BATTERY COVER REMOTE CONTROL / PT-47WX53G, PT-4743G, / PT-56WX53G, PT-53WX53G	
M012	UR76EC0303D	BATTERY COVER REMOTE CONTROL / PT-47WXC43G, PT-47WX33G	